

STUDY ON CORE DEPOSITS AND BROKERED DEPOSITS

**Submitted to Congress pursuant to the
Dodd-Frank Wall Street Reform and Consumer Protection Act**

Federal Deposit Insurance Corporation

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TABLE OF CONTENTS

I. SUMMARY	1
II. DEFINITIONS	4
A. CORE DEPOSITS	4
B. BROKERED DEPOSITS.....	5
III. LEGAL HISTORY OF BROKERED DEPOSITS.....	8
A. FDIC AND FHLBB RULEMAKING	8
B. THE FINANCIAL INSTITUTIONS REFORM, RECOVERY, AND ENFORCEMENT ACT.....	13
C. THE FEDERAL DEPOSIT INSURANCE CORPORATION IMPROVEMENT ACT.....	16
D. SECTION 337.6 OF THE FDIC’S REGULATIONS	17
E. FDIC ADVISORY OPINIONS.....	18
IV. DEPOSITS AND THEIR LEGAL TREATMENT.....	19
A. LISTING SERVICES	19
B. MARKETERS	21
C. INVESTMENT COMPANIES	25
D. PASS-THROUGH ARRANGEMENTS	27
E. BANK NETWORKS	28
F. PREPAID PRODUCTS	31
V. FDIC USE OF THE CORE AND BROKERED DEPOSITS CONCEPTS	32
A. SUPERVISION	32
B. ASSESSMENTS.....	33
VI. STUDIES AND ANALYSES	34
A. MATERIAL LOSS REVIEWS.....	34
B. STUDIES OF CORE AND BROKERED DEPOSITS	35
VII. CONCLUSIONS REGARDING CORE AND BROKERED DEPOSITS	46
A. CORE DEPOSITS	46
B. BROKERED DEPOSITS.....	47
VIII. ANALYSIS AND CONCLUSIONS REGARDING PARTICULAR KINDS OF DEPOSITS ...	48
A. PROBLEMS THAT DEPOSITS CAN PRESENT	48
B. DEPOSIT CHARACTERISTICS	49
C. RECIPROCAL BROKERED DEPOSITS	53
D. SWEEP DEPOSITS	54
E. REFERRALS FROM AFFILIATES	56
F. ALL HIGH RATE DEPOSITS	58
IX. RECOMMENDATIONS.....	59
X. DODD-FRANK ISSUES.....	62
A. EVALUATE THE DEFINITION OF CORE DEPOSITS FOR THE PURPOSE OF CALCULATING THE DEPOSIT INSURANCE PREMIUMS OF BANKS.....	62
B. EVALUATE THE POTENTIAL IMPACT ON THE DIF OF REVISING THE DEFINITIONS OF BROKERED DEPOSITS AND CORE DEPOSITS TO BETTER DISTINGUISH BETWEEN THEM.....	62
C. EVALUATE AN ASSESSMENT OF THE DIFFERENCES BETWEEN CORE DEPOSITS AND BROKERED DEPOSITS AND THEIR ROLE IN THE ECONOMY AND BANKING SECTOR OF THE UNITED STATES	63
D, E. EVALUATE THE POTENTIAL STIMULATIVE EFFECT ON LOCAL ECONOMIES OF REDEFINING CORE DEPOSITS AND EVALUATE THE COMPETITIVE PARITY BETWEEN LARGE BANKS AND COMMUNITY BANKS THAT COULD RESULT FROM REDEFINING CORE DEPOSITS	64

APPENDIX A	66
APPENDIX B	69
APPENDIX C	115

I. Summary

Given the role that funding plays in the success or failure of a bank, the issue of core and brokered deposits is an important one to the Federal Deposit Insurance Corporation (the FDIC). Over the years, the FDIC and others have studied the specific role of core and brokered deposits in the performance of banks and the loss they impose on the Deposit Insurance Fund (the DIF or the fund) when a bank fails. With regard to brokered deposits, the FDIC began studying the issue almost 30 years ago, when it first attempted to regulate these deposits, and last undertook a formal study of the subject in 2002. Since 1989 and the passage of the statute governing brokered deposits (the brokered deposit statute),¹ the FDIC has remained focused on brokered deposits. While its views on core and brokered deposits have long been a part of its supervisory programs, more recently, they were incorporated into the deposit insurance assessment system.

During the early part of the current wave of heightened bank failures, the FDIC began observing a disturbing pattern among many failed banks that was similar to a pattern observed in the banking crisis of the late 1980s and early 1990s. A number of failures were occurring where there were concentrations in commercial real estate (CRE) and construction and development (C&D) lending funded by large amounts of brokered deposits, and this trend once again brought brokered deposits to the forefront. In response to these trends, in October 2008, the FDIC issued a notice of proposed rulemaking proposing to increase assessment rates for well-managed, well-capitalized banks that used brokered deposits to grow quickly and noted that “A number of costly institution failures, including some recent failures, have experienced rapid asset growth before failure and have funded this growth through brokered deposits.”^{2,3}

In recent years the FDIC has also observed, as have many in the banking industry, that technological advances and the evolution of the Internet have altered the ways that banks obtain deposits. When the statute governing brokered deposits was enacted in 1989, banks either did not use or barely used deposit listing and placement services, sweeps and reciprocal brokered deposits, for example. Some in the industry have questioned whether the statute governing brokered deposits, enacted in 1989, before the advent of these technological changes and innovations, should be changed.

Consequently, the FDIC viewed Congress’s mandate in the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank) that the FDIC conduct a study

¹ 12 U.S.C. § 1831f. Generally speaking, the current statute prohibits an adequately capitalized bank from accepting, renewing or rolling over brokered deposits without a waiver from the FDIC and prohibits an undercapitalized bank from accepting, renewing or rolling over brokered deposits at all. It also imposes restrictions on the interest rate that a less-than-well-capitalized bank can pay on any deposit. 12 U.S.C. § 1831f.

² 73 Fed. Reg. 61560, 61565 (Oct. 16, 2008).

³ Throughout this document, the word “bank” is used synonymously and interchangeably with the words “insured depository institution,” unless the context requires or suggests otherwise.

of core and brokered deposits⁴ as a timely opportunity to conduct a comprehensive study of deposits to evaluate the brokered deposit statute and whether the core and brokered deposit classification scheme used for supervision and assessment purposes can be improved.

To prepare this study, the FDIC solicited comments on the issues from the banking industry and the public. The FDIC received approximately 75 written comments that are discussed below. The FDIC also organized a roundtable discussion with representatives from bank trade groups, bank regulators, deposit brokers, banks that use brokered deposits, including traditional brokered deposits, sweep deposits and reciprocal deposits, and those that do not, and the academic community. The FDIC discussed the issues at meetings with the FDIC Advisory Committee on Community Banking and held 16 separate meetings with banks, trade groups and other interested parties. The FDIC also reviewed more than 20 Material Loss Reviews (MLRs) produced by the Offices of Inspector General of the various federal banking regulatory agencies, as well as their Semiannual Reports to Congress. In addition, the FDIC undertook a statistical analysis of core and brokered deposits and conducted a literature review of academic studies on core and brokered deposits.

In comments and discussions, the banking industry repeatedly expressed a few fundamental issues and concerns. First, they argued that the brokered deposit statute creates liquidity problems if a bank becomes less than well capitalized. If a bank is adequately capitalized, the brokered deposit statute allows the bank to accept, renew or roll over brokered deposits only with a waiver from the FDIC and, even then, the bank is subject to interest rate restrictions. If it becomes undercapitalized, it cannot accept, renew or roll over brokered deposits at all. Commenters argued that the liquidity problems can result and contribute to the failure of a bank that would not otherwise have failed.

Second, commenters argued that a combination of the statute and supervisory practices stigmatizes brokered deposits; according to commenters, some banks will not accept them even when they are an optimal source of funds and examiners tend to criticize those banks that do accept them, regardless of the bank's capital level or the appropriateness of the deposits as part of the bank's asset and liability term and rate structure.

⁴ Section 1506 of Dodd-Frank requires that, as part of the study, the FDIC include "legislative recommendations, if any, to address concerns arising in connection with the definitions of core deposits and brokered deposits." Dodd-Frank also requires that the study evaluate: (1) the definition of core deposits for the purpose of calculating the deposit insurance premiums of banks; (2) the potential impact on the Deposit Insurance Fund of revising the definitions of brokered deposits and core deposits to better distinguish between them; (3) an assessment of the differences between core deposits and brokered deposits and their role in the economy and banking sector of the United States; (4) the potential stimulative effect on local economies of redefining core deposits; and (5) the competitive parity between large banks and community banks that could result from redefining core deposits.

Dodd-Frank Sections IX and X of this study contain the FDIC's recommendations and its evaluation of the five issues set out in Dodd-Frank.

Third, as discussed above, commenters argued that the brokered deposit statute is outdated and has not kept pace with technological change and innovation. Commenters focused on three types of deposits—reciprocal deposits, deposit sweeps from broker-dealers, and referrals from affiliates and agents—that are defined as brokered deposits but, in the commenters’ view, do not share the same characteristics as traditional brokered deposits and should not be treated in the same way, either under the statute, for supervisory purposes or for assessment purposes. They also focused on high rate deposits, in general, and on listing service deposits, not all of which meet the definition of a brokered deposit. Commenters considered these deposits higher risk than other deposits.

While these comments raise important issues, the FDIC continues to have serious concerns about brokered deposits. As discussed below, research, including the FDIC’s own research undertaken in connection with this study, shows that, in general, as brokered deposit levels increase, the probability that a bank will fail also increases. Banks with higher levels of brokered deposits are also, in general, more costly to the DIF when they do fail. On average, brokered deposits are also correlated with higher levels of asset growth, higher levels of nonperforming loans, and a lower proportion of core deposit funding. All of these factors contribute to a higher likelihood of bank failure. Conversely, research shows that, generally, banks’ increasing reliance on core deposits reduces the chance of failure and reduces the DIF’s losses when banks do fail. Consequently, statistical studies support the view that the concepts of core and brokered deposits, as currently defined, remain useful in evaluating and predicting bank performance.

Based upon these studies, the FDIC has concluded that the brokered deposit statute continues to serve an essential function and recommends that Congress not amend or repeal it. During the most recent crisis, the statute has, in large measure, prevented failing banks from increasing their brokered deposits, and, therefore, from taking on greater risk in an effort to grow out of trouble and prevented greater FDIC losses when banks fail. The statute is also an important component of prompt corrective action under 12 U.S.C. § 1838(o), requiring regulators and banks to take corrective measures to confront problems. Although banks have many incentives to remain well capitalized, including lower deposit insurance assessments, for banks that rely on brokered deposits, the statute has increased the incentive to remain well capitalized.

Despite technological change and other deposit gathering innovations, the FDIC has found that, for supervisory and assessment purposes, the statute is sufficiently flexible to allow the FDIC to treat deposits, including new forms of brokered deposits, appropriately. FDIC examiner guidance states that there should be no particular stigma attached to the acceptance by well-capitalized banks of brokered deposits per se and that the proper use of such deposits should not be discouraged. The FDIC can and has granted waivers to allow adequately capitalized banks to accept, renew or roll over certain brokered deposits when appropriate, and, through the supervisory process and in the deposit insurance assessment system, distinguishes among types of brokered deposits.

In the absence of sufficient data, the FDIC evaluated particular kinds of deposits based on their characteristics to determine whether, and the extent to which, they have the potential to fuel rapid growth, create liquidity problems or increase losses to the FDIC in the event of failure.⁵ Because of the lack of sufficient data, the analysis could not reach firm conclusions, but it suggests that reciprocal deposits based upon real customer relationships, deposits swept from affiliated broker-dealers, and referrals from affiliates appeared likely to pose fewer problems than other brokered deposits, although they should not be considered core deposits. The analysis also suggests that high rate deposits and non-brokered listing services appeared likely to pose problems similar to most brokered deposits. Much of this analysis is already taken into account in supervision and deposit insurance assessments, but the study contemplates possible additional action (primarily through changes to the assessment system) to take into account the risks of these particular kinds of deposits, though any such action would require additional reporting and notice-and-comment rulemaking. The benefits of such action must be weighed against the burden of this additional reporting.

The study, recommendations and conclusions that follow, while limited to bank deposits, are part of a larger question of bank funding and risk management, and must be viewed in that light. All bank liabilities, including deposit liabilities, must ultimately be evaluated in the context of a bank's overall risk-management strategy, asset and liability structure, and whether a bank is overly dependent on a single source of funding.

II. Definitions

A. 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). Until March 31, 2011, core deposits were defined in the UBPR User Guide as the sum of demand deposits, all NOW and automatic transfer service (ATS) accounts, money market deposit accounts (MMDAs), other savings deposits, and time deposits under \$100,000.⁶ 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

⁵ As discussed in Section VIII below, the FDIC evaluated high rate deposits, reciprocal deposits, deposits swept from an affiliated-broker dealer, referrals from affiliates (which, in some limited circumstances, may include referrals from agents of the bank or affiliate), and passive (non-brokered) listing service deposits based on the following characteristics: interest rate, customer relationship, ease of access, deposit insurance status and time to maturity.

⁶ 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.

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.

Core deposits, as an analytical and supervisory tool, are intended to include those deposits that are stable and lower cost and that reprice more slowly than other deposits when interest rates rise.⁷ These deposits are typically funds of local customers that also have a borrowing or other relationship with the bank. However, in some instances, core deposit accounts (e.g., time deposits) may exhibit characteristics associated with more volatile funding sources. Conversely, deposit accounts generally viewed as volatile funding (e.g., certificates of deposit—CDs—larger than \$250,000) may be relatively stable funding sources.

B. Brokered Deposits

Unlike core deposits, brokered deposits are defined by statute. Section 29 of the Federal Deposit Insurance Act (FDI Act) in essence defines a “brokered deposit” as simply a deposit accepted through a “deposit broker.”⁸ Thus, the meaning of the term “brokered deposits” turns upon the definition of “deposit broker.” In section 29 of the FDI Act, the term “deposit broker” is defined as follows:

The term “deposit broker” means (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; 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.⁹

This broad definition of “deposit broker” is subject to certain exceptions. In section 29, these exceptions are listed as follows:

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

(B) an employee¹⁰ of an insured depository institution, with respect to funds placed with the employing depository institution;

⁷ See FDIC’s Risk Management Manual of Examination Policies.

⁸ See 12 C.F.R. § 337.6(a)(2).

⁹ 12 U.S.C. § 1831f(g)(1). See also 12 C.F.R. § 337.6(a)(5)(i).

¹⁰ The term “employee” is narrowly defined as “any employee (A) who is employed exclusively by the insured depository institution; (B) whose compensation is primarily in the form of a salary; (C) who does not share such employee’s compensation with a deposit broker; and (D) whose office space or place of

(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 . . . 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.¹¹

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 deposit program.”¹²

Section 29 sets forth restrictions on the acceptance of brokered deposits that also appear in the FDIC’s regulations.^{13,14} The restrictions may be summarized as follows:

- Well capitalized banks may accept brokered deposits at any time.

business is used exclusively for the benefit of the insured depository institution which employs such individual.” 12 U.S.C. § 1831f(g)(4). *See also* 12 C.F.R. § 337.6(a)(6).

¹¹ 12 U.S.C. § 1831f(g)(2). *See also* 12 C.F.R. § 337.6(a)(5)(ii).

¹² 12 C.F.R. § 337.6(a)(5)(ii)(J). An example of such a program is the “Bank Deposit Financial Assistance Program of the Department of Energy.” For this program, Congress has created a special rule governing the insurance of the deposits. This special rule provides as follows: “[F]unds deposited by an insured depository institution pursuant to the Bank Deposit Financial Assistance Program of the Department of Energy shall be separately insured in an amount not to exceed the standard maximum deposit insurance amount [*i.e.*, \$250,000] . . . for each insured depository institution depositing such funds.” 12 U.S.C. § 1817(i)(3).

¹³ *See* 12 U.S.C. § 1831f.

¹⁴ *See* 12 C.F.R. § 337.6.

- Adequately capitalized banks may accept new brokered deposits and renew or roll over existing brokered deposits if they have obtained a waiver from the FDIC.
- Undercapitalized banks may never accept, renew, or roll over brokered deposits.

In section 29, the restrictions on the acceptance of brokered deposits are accompanied by certain restrictions on deposit interest rates. The latter restrictions may be summarized as follows:

- Well capitalized banks may offer rates on deposits without restriction.
- Adequately capitalized banks with waivers to accept brokered deposits may offer rates as follows:
 - In the case of deposits accepted from within the bank’s “normal market area,” the rates may not “significantly exceed” the rates in such area.
 - In the case of deposits accepted from outside the bank’s “normal market area,” the rates may not “significantly exceed” the “national rate” established by the FDIC.
- Adequately capitalized banks without waivers to accept brokered deposits may not offer rates that are “significantly higher” than the “prevailing rates” in the bank’s “normal market area” (even if the deposits are accepted from outside that area).
- Undercapitalized banks may not offer rates that are “significantly higher” than the “prevailing rates” in either: (1) the bank’s “normal market area”; or (2) the area from which the deposits are accepted.¹⁵

Through its regulations, the FDIC has simplified the operation of the interest rate restrictions outlined above. In general, under the FDIC’s regulations, any bank that is not well capitalized may offer no more than the “national rate” plus 75 basis points for deposits of similar size and maturity. The “national rate” is a simple average of rates paid by all banks and branches. On a weekly basis, the FDIC publishes the rate caps on its website. If a bank believes that the “national rate” does not correspond to the actual rates in the bank’s particular market, the bank is permitted to offer evidence of the actual market rates.¹⁶

In summary, in the case of banks that are not well capitalized, section 29 restricts the acceptance of brokered deposits and also restricts deposit interest rates.

¹⁵ 12 U.S.C. § 1831f.

¹⁶ See 12 C.F.R. § 337.6(e).

III. Legal History of Brokered Deposits

For banks subject to the restrictions on the acceptance of brokered deposits, the meaning of the term “brokered deposits” is critical. Though this term is defined in the law (through the definition of “deposit broker”), some banks have disputed the classification of certain deposits as “brokered deposits.”

This section discusses the history and purpose of the restrictions on the acceptance of brokered deposits.

A. FDIC and FHLBB Rulemaking

Prior to the enactment of the current statutory restrictions on the acceptance of brokered deposits, the FDIC and the Federal Home Loan Bank Board (FHLBB), as operating head of the Federal Savings and Loan Insurance Corporation (FSLIC), attempted to control brokered deposits through rulemaking. This effort began in 1983, when the FDIC and the FHLBB jointly published an advance notice of proposed rulemaking.¹⁷ In that notice, the two agencies described three forms of deposit-brokering:

- Simple brokering: In this form, a money broker solicits deposits from customers for placement (by the broker or by the customer) at banks.
- CD participations: A broker-dealer purchases a CD issued by a bank and sells interests in the CD to customers.
- Deposit-listing services: A bank advertises interest rates and maturities through a third party, which arranges by telephone for the sale of the bank’s deposits to the public.

The FDIC and the FHLBB expressed concerns about these methods of gathering deposits. They explained their concerns as follows:

The FDIC and the Board are concerned that the above-described deposit-placement practices enable virtually all institutions to attract large volumes of funds from outside their natural market area irrespective of the institutions’ managerial and financial characteristics. The ability to obtain de facto one-hundred-percent deposit insurance through the parceling of funds eliminates the need for the depositor to analyze institutions’ likelihood of continued financial viability. The availability of these funds to all institutions, irrespective of financial and managerial soundness, reduces market discipline. Although deposit brokering can provide a helpful source of liquidity to institutions, the practices described above make it possible for poorly-managed institutions to continue operating beyond the time at which natural market forces would have otherwise

¹⁷ See 48 Fed. Reg. 50339 (November 1, 1983).

precipitated their failure. This impediment to natural market forces results in increased costs to the FDIC and the FSLIC in the form of either greater insurance payments or higher assistance expenditures if the institutions are subsequently closed because of insolvency.¹⁸

In the advance notice of proposed rulemaking, the two agencies did not, however, express concerns about deposit volatility. On the basis of the concerns they did express, the FDIC and the FHLBB solicited comments on “all possible avenues available for remedying existing industry practices which may have a negative effect upon depository institutions and produce increased costs to the insurance funds as well as to the public.”¹⁹

In early 1984, after reviewing the public comments, the FDIC and the FHLBB published proposed rules.²⁰ The basis of the proposed rules was the agencies’ determination that “deposit brokerage has a sufficiently adverse effect upon the depository institutions industry to warrant remedial regulatory action.”²¹ In addressing this “adverse effect,” the FDIC and the FHLBB did *not* propose to prohibit the acceptance of brokered deposits. Rather, the agencies proposed to limit the insurance coverage of such deposits at *all* banks. The agencies justified this approach as follows:

[T]he FDIC and the Board believe that deposit brokerage represents an outright misuse of the federal deposit insurance system. Deposit insurance was originally intended to establish stability and to promote confidence in the monetary and banking systems by protecting primarily small, relatively unsophisticated depositors in their relationships with banks and savings associations. It was never intended to protect investors seeking the highest yields available in money markets.²²

In choosing to limit deposit insurance coverage, rather than to control brokered deposits through other means, the two agencies offered the following explanation:

The agencies believe the deposit insurance alternative would avoid the constant monitoring of all deposit brokerage activity which would only serve to increase the regulatory burden on depository institutions and the supervisory role of the agencies. Alternatively, a blanket prohibition on the use of brokered deposits would be unduly restrictive and would totally eliminate the benefits to insured institutions of brokered deposits. Limiting the insurance coverage of brokered deposits would not defeat the liquidity benefits of brokered deposits for well-run institutions. Such deposits would still be obtainable, but without a ‘federal guaranty.’ Investment decisions would be made on the strength or weakness of the

¹⁸ *Id.* at 50340.

¹⁹ *Id.*

²⁰ *See* 49 Fed. Reg. 2787 (January 23, 1984).

²¹ *Id.* at 2789.

²² *Id.*

involved depository institution, and not on the federal insurance feature of the deposit.²³

The FDIC and the FHLBB did not propose to eliminate deposit insurance coverage on brokered deposits altogether, but to eliminate “pass-through” insurance coverage for brokered deposits. Coverage of these deposits would be limited to \$100,000 for each broker at each bank.

After receiving almost 7,000 comments, the FDIC and the FHLBB published final rules.²⁴ Through these rules, the agencies eliminated “pass-through” insurance coverage for brokered deposits. In doing so, the agencies rejected all of the following suggested alternative methods for controlling these deposits:

- Focus on institutional accounts only;
- Focus on troubled banks only;
- Impose limits on deposit growth;
- Require registration of deposit brokers with the Securities and Exchange Commission;
- Charge variable-rate deposit insurance assessments;
- Implement increased supervisory efforts; and
- Prohibit or limit the acceptance of brokered deposits.

In rejecting these alternatives, the FDIC and the FHLBB reasoned as follows:

[T]he final rule achieves the Agencies’ intended purposes by using market discipline rather than by imposing burdensome regulatory and reporting requirements. The alternatives suggested are, in contrast, ineffective and/or overly burdensome, and all assume that the Congress intended deposit brokers to benefit through the marketing of FDIC- or FSLIC-insured products without being directly subject to regulations intended to ensure the soundness of the Insurance Funds.²⁵

The basis of the final rules was the belief “that insured deposit brokerage is inconsistent with the fundamental and overriding purposes which were meant to be

²³ *Id.*

²⁴ See 49 Fed. Reg. 13003 (April 2, 1984) (effective on October 1, 1984).

²⁵ *Id.* at 13008.

served by the federal deposit insurance system.”²⁶ In explaining the dangers of brokered deposits, the FDIC and the FHLBB noted the following:

These funds, which are often received in large amounts at high cost, must be invested quickly for purposes of economic efficiency. The Agencies’ experience has shown that the speed required may not allow for the usual care to be taken in appraisals and credit checks relative to investments. Moreover, the need to offer a high rate of return to attract brokered funds may require institutions to take greater investment risks, a factor often aggravated where the broker or associated parties suggest or stipulate particular uses for the funds. Healthy institutions may become problem cases very quickly through a very few transactions of this sort. One institution, for example, used brokered deposits to quadruple its asset size in a year. Although this institution was healthy at the outset of the year, the brokered funds were used to invest in highly speculative commercial loans at a pace that precluded the association from using adequate underwriting procedures, so that it is now a problem for the FSLIC.²⁷

The final rules included a definition of “deposit broker.” This definition was almost identical to the definition later adopted by Congress in connection with the current statutory restrictions on the acceptance of brokered deposits. The definition included two primary components. First, the term “deposit broker” was broadly defined as:

[a]ny person engaged in the business of placing funds, or facilitating the placement of funds, of third parties with insured banks [or ‘insured institutions’ in the case of the FHLBB’s final rule] or the business of placing funds with insured banks 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 bank to use the proceeds of the account to fund a prearranged loan.²⁸

Second, the definition included a list of nine exceptions (the same nine exceptions that appear in the current statutory definition), including an exception for “an agent or nominee whose primary purpose is not the placement of funds with depository institutions.”²⁹

In addition, the final rules provided that certain deposits accepted through “listing services” would not be treated as brokered deposits. The FDIC’s rule described these deposits as follows:

²⁶ *Id.* at 13005.

²⁷ *Id.* at 13006.

²⁸ *Id.* at 13010.

²⁹ *Id.* at 13011.

(1) The person or entity listing the deposit is compensated only by means of a subscription fee which is not calculated on the basis of the number or dollar amount of deposits placed as the result of information provided by such service; (2) the service provided is limited to the gathering and transmission of information concerning the availability of deposits; and (3) any funds to be invested in deposit accounts are remitted directly by the depositor to the insured bank and not, directly or indirectly, through the person or entity providing the listing service.³⁰

Immediately after the promulgation of the regulations, a securities firm and the Securities Industry Association brought a lawsuit against the FDIC and the FHLBB. The plaintiffs asserted that the regulations were invalid. The United States Court of Appeals for the District of Columbia Circuit agreed, finding that the adoption of the regulations exceeded the agencies' statutory authority.³¹ In reaching this conclusion, the court largely relied upon section 3 of the FDI Act. At the time of the litigation, section 3 provided as follows:

[T]he term "insured deposit" means the net amount due to any depositor ... for deposits in an insured bank (after deducting offsets) less any part thereof which is in excess of \$100,000. Such net amount shall be determined according to such regulations as the Board of Directors may prescribe, and in determining the amount due to any depositor there shall be added together all deposits in the bank maintained in the same capacity and the same right for his benefit either in his own name or in the names of others....³²

The court described section 3 of the FDI Act (quoted above) as follows:

These provisions establish a clear and unequivocal mandate that the FDIC shall insure each depositor's deposits up to \$100,000, determining the amount of those deposits by adding together all accounts maintained for the benefit of the depositor, whether or not in the depositor's name. There is no exception based upon the identity of the person opening, or responsible for opening, the account.³³

³⁰ *Id.*

³¹ See *FAIC Securities, Inc. v. United States*, 768 F.2d 352 (D.C. Cir. 1985).

³² 12 U.S.C. § 1813(m)(1) (1980 edition). This language concerning the aggregation of deposits owned by a depositor "in the same capacity and the same right for the benefit of the depositor either in the name of the depositor or in the name of any other person" now appears in section 11 of the FDI Act. See 12 U.S.C. § 1821(a)(1)(C).

³³ 768 F.2d at 361.

On the basis of this statutory mandate, the court concluded that the FDIC could not deny insurance coverage to depositors who place funds at banks through brokers.³⁴

This court decision ended the attempt by the FDIC and the FHLBB to control brokered deposits through regulation. As discussed below, however, the controversy over brokered deposits prompted action by Congress.

B. The Financial Institutions Reform, Recovery, and Enforcement Act

Congress held several hearings on brokered deposits in 1984 and 1985. Congress took no action, however, until the enactment of the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA).

Through FIRREA, Congress amended the FDI Act by adding section 29. Unlike the FDIC and FHLBB regulations, section 29 did not strip brokered deposits of “pass-through” insurance coverage. Rather, section 29 prohibited the acceptance of brokered deposits by “troubled” insured depository institutions, with “troubled institution” being defined as “any insured depository institution which does not meet the minimum capital requirements applicable with respect to such institution.”³⁵ In other words, section 29 defined a “troubled institution” as an undercapitalized institution.

Specifically, section 29 provided as follows: “A troubled institution may not accept funds obtained, directly or indirectly, by or through any deposit broker for deposit into 1 [sic] or more deposit accounts.”³⁶ Notwithstanding this general prohibition, section 29 also provided that the FDIC could grant a waiver to a troubled bank “upon a finding that the acceptance of such deposits does not constitute an unsafe or unsound practice with respect to such institution.”³⁷

Under this statutory rule (restricting the acceptance of deposits through “deposit brokers”), the meaning of “deposit broker” is crucial. Section 29 defined that term as follows:

³⁴ The court did not discuss the FDIC’s authority under section 12(c) of the FDI Act, which provides (in its current form) as follows:

Except as otherwise prescribed by the Board of Directors, neither the Corporation nor such new depository institution or other insured depository institution [*i.e.*, an assuming bank] shall be required to recognize as the owner of any portion of a deposit appearing on the records of the depository institution in default under a name other than that of the claimant, any person whose name or interest as such owner is not disclosed on the records of such depository institution in default as part owner of said deposit, if such recognition would increase the aggregate amount of the insured deposits in such depository institution in default.

12 U.S.C. § 1822(c).

³⁵ FIRREA, Pub. L. No. 101-73, § 224, 103 Stat. 183 (1989).

³⁶ *Id.*

³⁷ *Id.*

(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; 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.³⁸

This broad definition included nine exceptions, including an exception for “an agent or nominee whose primary purpose is not the placement of funds with depository institutions.”³⁹ Thus, in defining “deposit broker,” Congress simply borrowed the definition of “deposit broker” in the invalidated FDIC and FHLBB regulations.

Congress did not explain the purpose of section 29 in any detail. The Congressional report that accompanied the legislation merely provided the following general description:

Any insured financial institution which does not meet the minimum capital requirements applicable with respect to such institutions and is thus a ‘troubled’ institution may not accept funds obtained directly or indirectly by or through any deposit broker for deposit into one or more accounts. A troubled institution is also prohibited from soliciting deposits by offering rates of interest which are significantly higher than the prevailing rates of interest on deposits offered by other insured financial institutions ... in such financial institution’s normal market area. This latter provision prohibits the solicitation of deposits by in-house salaried employees through so-called money desk operations.

The FDIC is also explicitly authorized to impose by regulation or rule additional restrictions on the acceptance of brokered deposits by troubled institutions. Explicitly providing such authority to the FDIC with regard to troubled institutions is not meant to imply that the Corporation does not already have the authority to regulate the use of brokered deposits by fully capitalized and under capitalized institutions.

The provision authorizes the FDIC to waive the prohibition on the acceptance of brokered deposits by troubled institutions, but only after a case-by-case review of applications made by such institutions and then only upon a finding that the acceptance of brokered deposits by a given institution does not constitute an unsafe or unsound practice.

The conferees understand that there are situations where brokered deposits are useful and needed particularly for liquidity purposes. Although the provision requires a case-by-case application by a troubled institution for

³⁸ *Id.*

³⁹ *Id.*

waiver of the prohibition, the Corporation may indicate by rulemaking the type or types of situations in which the Corporation would consider granting a waiver consistent with the statute. The prohibition, however, could only be waived by a finding that the use of brokered deposits by a particular troubled institution does not constitute an unsafe or unsound practice for it.⁴⁰

Because Congress was concerned that “salaried employees” might perform the same function as deposit brokers, the definition of “deposit broker” also included:

[A]ny insured depository institution, and any employee of any insured depository institution, which engages, directly or indirectly, in the solicitation of deposits by offering rates of interest (with respect to such deposits) 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.

The effect of this provision was to prohibit a “troubled institution” without a waiver from offering rates significantly higher than prevailing market rates.

The legislative history of section 29, though not extensive, suggests that some members of Congress may have been concerned about deposit volatility. In a report produced by the House Committee on Banking, Finance and Urban Affairs in connection with FIRREA, this concern was expressed as follows:

Many failed thrifts relied on volatile funding, such as brokered deposits controlled by a few individuals, which could be quickly withdrawn, paralyzing the institution. At one failed thrift, Jumbo Certificates of Deposit (usually deposits of \$100,000 and over) made up 96 percent of total deposits. At another failed thrift, brokered deposits grew from 14% to 86% of all deposits in just one year. Because these funds are generally more expensive to obtain they cut into the interest margin earned on investments. Lower net interest margins encourage managers to take greater risks in order to maintain adequate earnings. Higher risks are all too often translated into higher failures.⁴¹

In summary, Congress through FIRREA prohibited “troubled institutions” from obtaining deposits through “deposit brokers” unless the bank obtains a waiver from the FDIC. Further, Congress provided that the term “deposit broker” includes the bank itself (or its own employees) when offering high interest rates. In otherwise defining “deposit broker,” Congress borrowed the definition previously used by the FDIC and the FHLBB.

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

⁴¹ H.R. Rep. No. 101-54(I), *reprinted in* 1989 U.S.C.C.A.N. 86, 96.

C. The Federal Deposit Insurance Corporation Improvement Act

Following the enactment of FIRREA, Congress continued to study brokered deposits and held several hearings on the subject.

Through the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA), Congress made several amendments to section 29 of the FDI Act. One of these amendments was to broaden the applicability of section 29 from “troubled institutions” (*i.e.*, undercapitalized banks) to any “insured depository institution that is not well capitalized.” In other words, Congress extended the applicability of section 29 to adequately capitalized banks.⁴² Also, Congress stripped the FDIC of its authority to grant waivers to undercapitalized banks but permitted the FDIC to grant waivers to adequately capitalized banks.⁴³

In regard to interest rates, Congress added a new subsection that prohibited an insured bank with a waiver from paying an interest rate on brokered deposits that:

[S]ignificantly exceeds (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 Corporation, for deposits accepted outside the institution’s normal market area.⁴⁴

In the case of an undercapitalized bank (that cannot obtain a waiver), Congress provided that the bank:

[S]hall not solicit deposits by offering rates of interest that are significantly higher than the prevailing rates of interest on insured deposits (1) in such institution’s normal market area; or (2) in the market area in which such deposits would otherwise be accepted.⁴⁵

Finally, through a new section 29A of the FDI Act, Congress barred deposit brokers from soliciting or placing deposits at insured banks unless the broker provided written notification of this activity to the FDIC.⁴⁶ Congress later repealed this section through the Financial Regulatory Relief and Economic Efficiency Act of 2000.⁴⁷

⁴² FDICIA, Pub. L. No. 102-242, § 301, 105 Stat. 2236 (1991).

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *See* Pub. L. No. 106-569, § 1203. The FDIC explained the repeal of this section as follows: “In the past, some deposit brokers have advertised themselves as ‘FDIC-registered.’ Such advertisements suggested that the broker had been approved or examined by the FDIC. Such suggestions were incorrect. By repealing section 29A, Congress intended to eliminate such inaccurate advertisements.” 66 Fed. Reg. 17621-01, 2001 WL 313746 (April 3, 2001).

These provisions apparently represented a compromise between members of Congress who wanted to tighten the restrictions on brokered deposits and those members who believed that problems at banks were caused by the improper use of deposits, not by the source of deposits. In any event, Congress through FDICIA strengthened the prohibition against the acceptance of brokered deposits as follows: (1) by broadening the scope of the prohibition to include adequately capitalized banks; and (2) by removing the ability of the FDIC to grant waivers to undercapitalized banks.

Similarly, Congress amended the rules on interest rates but did not change those rules in a fundamental manner. Before FDICIA, a “troubled institution” without a waiver could not offer rates significantly higher than prevailing market rates; after FDICIA, even with a waiver, a bank that was not well capitalized could not offer rates that significantly exceeded the prevailing rate in the applicable market area (in some cases) or the “national rate” established by the FDIC (in other cases).

Congress did not change the definition of “deposit broker” enacted in FIRREA.

D. Section 337.6 of the FDIC’s Regulations

Following the enactment of FIRREA, the FDIC adopted an interim rule to implement the statutory restrictions on the acceptance of brokered deposits that, to a large extent, simply tracked the statute.⁴⁸

Following the enactment of FDICIA, the FDIC revised its regulation. Again, in regard to the basic rules on the acceptance of brokered deposits, the regulation tracked the statute. In regard to the interest rate restrictions, the FDIC added details such as a definition of “national rate” and a definition of “market area.”^{49,50}

More recently, in 2009, the FDIC amended its regulation by simplifying the interest rate restrictions.⁵¹ The FDIC summarized the amended regulations as follows:

The FDIC is amending its regulations relating to the interest rate restrictions that apply to insured depository institutions that are not well capitalized. Under the amended regulations, such insured depository institutions generally will be permitted to offer the “national rate” plus 75 basis points. The “national rate” will be defined, for deposits of similar size and maturity, as a simple average of rates paid by all insured depository institutions and branches for which data are available. For those cases in which the FDIC determines that the national rate as

⁴⁸ See 54 Fed. Reg. 51014 (December 12, 1989). The interim rule was codified at 12 C.F.R. § 337.6.

⁴⁹ See 57 Fed. Reg. 23941 (June 5, 1992).

⁵⁰ Also, in the list of exceptions to the definition of “deposit broker,” the FDIC added a tenth exception for “[a]n 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 deposit program.” 12 C.F.R. § 337.6(a)(5)(ii)(J).

⁵¹ See 74 Fed. Reg. 27679 (June 11, 2009).

published on the FDIC’s Web site does not represent the prevailing rate in a particular market, as indicated by available evidence, the depository institution will be permitted to offer the prevailing rate in that market plus 75 basis points.⁵²

E. FDIC Advisory Opinions

As discussed in the preceding sections, the definition of “deposit broker” has two main parts. First, the definition broadly encompasses “any person engaged in the business of placing deposits, or facilitating the placement of deposits, of third parties with insured depository institutions”⁵³ Second, the definition sets forth certain exceptions.⁵⁴

The definition of “deposit broker” is the subject of numerous FDIC advisory opinions.⁵⁵ In some of these opinions, the issue is whether a particular activity constitutes “placing deposits, or facilitating the placement of deposits.” Other opinions involve the applicability of one or more of the exceptions. In opinions of the latter type, the most common issue is whether a particular party is “an agent or nominee whose primary purpose is not the placement of funds with depository institutions” (the primary purpose exception).⁵⁶

Many of the FDIC’s advisory opinions fall into specific categories, which can be described as follows:

- Opinions involving the difference between deposit brokers and companies known as “listing services,” which publish deposit interest rates offered by banks.
- Opinions involving parties who provide marketing for banks, or who refer potential depositors to banks.
- Opinions involving securities firms or investment companies, including companies that “sweep” or transfer idle customer funds into deposit accounts at one or more banks.
- Opinions involving the insurance coverage of brokered deposits, including deposits placed for customers by an insured bank at other insured banks so that each customer will receive total insurance coverage in excess of the \$250,000 limit (*i.e.*, up to \$250,000 at each bank).

⁵² *Id.*

⁵³ 12 U.S.C. § 1831f(g)(1).

⁵⁴ *See* 12 U.S.C. § 1831f(g)(2).

⁵⁵ FDIC advisory opinions are available at <http://fdic.gov/regulations/laws/rules/4000-50.html>.

⁵⁶ 12 U.S.C. § 1831f(g)(2)(I).

These categories contain the most common issues on brokered deposits presented to the FDIC. The next section describes each of these categories and related legal issues in more detail. Also, the next section discusses an issue that the FDIC has not addressed in its published advisory opinions: whether companies involved in the distribution of prepaid products should be classified as deposit brokers.

IV. Deposits and Their Legal Treatment

A. Listing Services

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 financial institutions. Depositors use listing services to find the best rate available for a given deposit type and, in the case of a CD, term. In its simplest form, a newspaper advertisement listing one or more institutions' deposit rates is a listing service, but a more commonly thought of listing service lists many depository institutions and their rates from highest to lowest. Some are open to the public and can be found on the Internet. Other listing services are closed to the public; in these services, depositors are typically financial institutions and institutional investors. Some listing services derive income through subscription fees paid by the institution listing their rates. Other listing services earn income by charging the listing institution fees based on the volume of deposits placed. In the case of newspapers, income for listing a bank's deposit and rate comes in the form of advertisement revenue.

In sum, a "listing service" is a company that compiles information about the interest rates offered by banks on deposit products, especially CDs. A "deposit broker," on the other hand, is "any person engaged in the business of placing deposits, or facilitating the placement of deposits, of third parties with insured depository institutions. . . ."⁵⁷ A "listing service" is thus a compiler of information about deposits, whereas a "deposit broker" is a facilitator in the placement of deposits.

Of course, 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 criteria for determining when a "listing service" qualifies as a "deposit broker." The development of these criteria began in 1990 with Advisory Opinion No. 90-24 (June 12, 1990).⁵⁸ That opinion involved "a computerized rate listing service for jumbo CD issuers" that "link[ed] thousands of potential buyers and sellers of CD's together." The service charged a monthly subscription fee; it did not charge any transaction fees. Indeed, the service was not

⁵⁷ 12 U.S.C. § 1831f(g)(1)(A); 12 C.F.R. § 337.6(a)(5)(i)(A).

⁵⁸ In a broad sense, the development of the FDIC's criteria began in 1984 when the FDIC and the FHLB adopted regulations that stripped brokered deposits of "pass-through" insurance coverage. *See* 49 Fed. Reg. 13003 (April 2, 1984). Through litigation, these regulations were invalidated (as previously discussed). *See FAIC Securities, Inc. v. United States*, 768 F.2d 352 (D.C. Cir. 1985). An obvious similarity exists between the criteria used by the FDIC and FHLB and the criteria later set forth by the FDIC through advisory opinions (as discussed in this section).

involved in any transactions. In determining that the listing service was *not* a deposit broker, the FDIC reasoned as follows:

In our opinion, [the Company] is engaged in providing information on current interest rates to its subscribers, be they individuals considering whether to purchase jumbo CD's, or depository institutions attempting to set a competitive rate of interest for such CD's. What [the Company] facilitates is the decision of the would-be buyer whether (and from whom) to buy a CD, or the decision of the depository institution as to what rate to set; it is not facilitating the *placement* of deposits *per se*.

Subsequently, in Advisory Opinion No. 92-50 (July 24, 1992), the FDIC set forth specific criteria to determine when a listing service qualifies as a deposit broker. Through these criteria, the FDIC took the position that a listing service is not a deposit broker if the service "is compensated only by means of subscription fees . . . and such fees are not calculated on the basis of the number or dollar amount of deposits placed as the result of information provided by the listing service." That is, a listing service must charge flat subscription fees; otherwise, the service is a deposit broker. Although the FDIC did not articulate the rationale for this distinction, it is inferable: compensation based on the amount of deposits placed through a listing service may create a motivation on the part of the service to become involved in the placement of deposits. Indeed, such compensation strongly suggests that the service is involved in some manner in placing deposits. Therefore, the existence of such compensation will result in classifying the listing service as a deposit broker.

The FDIC revised its criteria in 2002 through Advisory Opinion No. 02-04 (November 13, 2002). The FDIC made additional revisions through Advisory Opinion No. 04-04 (July 28, 2004). In the latter opinion, the FDIC took the position that an Internet listing service could provide a platform for executing trades (*i.e.*, a platform that enables parties to order the purchase or sale of CDs or other deposit products) without becoming a deposit broker. The FDIC expressed this position as follows:

[T]hrough advances in technology, an Internet-based 'listing service' can transmit messages (including trade confirmations) between depositors and depository institutions so long as the Internet-based 'listing service' is a passive mechanism for 'posting' rates and transmitting messages.

Under the FDIC's revised criteria (as set forth in Advisory Opinion No. 04-04), a listing service is not a deposit broker if the service satisfies each of the following requirements:

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.
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.

At present, the FDIC applies these criteria to Internet companies that assist banks in attracting deposits. Assuming these criteria are satisfied, the FDIC takes the position that the Internet 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.

The FDIC’s treatment of listing services can be contrasted with the FDIC’s treatment of entities that provide marketing for insured banks. The latter type of entity is discussed below.

B. Marketers

Some banks attempt to attract new depositors through advertising conducted by other entities. In some cases, the entity is a nonprofit organization or “affinity group.” In other cases, the entity is a commercial enterprise. In either case, the entity conducts marketing on behalf of the bank or refers members or customers to the bank in exchange for fees or commissions.

The FDIC has developed criteria for determining when these entities qualify as deposit brokers. In the case of nonprofit affinity groups, the development of these criteria began in 1992 with Advisory Opinion No. 92-79 (November 10, 1992). In that opinion,

the FDIC described the marketing arrangement between the bank and the affinity groups as follows:

The associations endorse the bank's credit and deposit products, cooperate in marketing the products, sell advertising space in their publications to the bank at standard rates, permit the bank to include deposit solicitations in credit mailings and other direct mailings to association members, place poster and brochure racks relating to the bank's credit and deposit products in association offices, and include information about the bank's products in new member kits.

In exchange for these marketing efforts, the affinity groups earned fees described as follows:

Each association earns an incentive fee when an association member maintains a credit or deposit relationship with the bank. The association fee is calculated as a percentage of the average daily balances of deposits maintained by the association's members during the calculation period.

In this advisory opinion, the affinity groups did *not* accept deposits on behalf of the bank or process deposit account applications for the bank. Nonetheless, the FDIC determined that the affinity groups should be classified as deposit brokers. The FDIC explained this determination as follows:

The fact that your company is never in possession of the investor's principal or interest, and never acts as trustee or agent for the investor, does not exempt it from the FDI Act requirements applicable to deposit brokers. The key test is whether your company may be said to be 'engaged in the business of placing deposits, or *facilitating the placement of deposits*, of third parties with insured depository institutions....' In other words, the FDI Act covers scenarios where the broker 'facilitates the placement' of deposits, as well as scenarios where the broker places deposits in its name as nominee or agent for others. In common usage, the term 'facilitate' means 'to free from difficulty or impediment; to make easy or less difficult.' The activities of the associations clearly make it easier for the investor to place its deposits with the bank.

(Emphasis in the original.) The FDIC concluded as follows:

Even where the investor, after having been contacted by an association, calls the bank directly to establish an account, the association would be considered to be a deposit broker because it is 'facilitating the placement' of deposits; the broad definition of deposit broker used in the FDI Act encompasses such 'match-making' or 'finder' activities.

This broad interpretation of the term "facilitating the placement of deposits" can be contrasted with the more narrow interpretation applied by the FDIC in the case of listing services. As discussed in the preceding section, the FDIC takes the position that

some listing services do not “facilitate the placement of deposits” even when they provide an Internet platform for the execution of trades. Of course, unlike the affinity groups discussed in Advisory Opinion No. 92-79, these listing services do not attempt to steer deposits into particular banks. Rather, they provide depositors with the means to select a listed bank.

After issuing Advisory Opinion No. 92-79, the FDIC refined its position with respect to affinity groups through Advisory Opinion No. 93-30 (June 15, 1993). In the latter opinion, the FDIC described the activities of the affinity groups as follows:

[T]he Bank markets a significant portion of its deposits to Affinity Group members. After identifying a suitable Affinity Group, the Bank seeks its endorsement of the Bank and its credit and other products and, upon entering into an endorsement agreement with the Affinity Group, markets the Bank’s products to the Affinity Group’s members with such endorsement. The Affinity Group signs a solicitation letter prepared by the Bank and delivers a list of its members to whom the Bank sends solicitations.

In exchange for these endorsements, the affinity groups earned “royalties” from the bank.

The FDIC described the activities of the affinity groups on behalf of the bank as “passive and indirect.” In determining that the affinity groups were *not* “facilitating the placement of deposits,” the FDIC relied upon seven factors described as follows:

(a) all of the Affinity Groups are non-financial institutions, and the vast majority are non-profit organizations; (b) none of the Affinity Groups directly markets the deposit products for the Bank; (c) Affinity Group members who decide to place deposits with the Bank do so directly with the Bank (the Affinity Groups do not receive funds from their members for deposit with the Bank or otherwise process any member deposits); (d) the Affinity Groups have exclusive relationships with the Bank and do not endorse deposit products of other institutions; (e) most, but not all, of the Affinity Groups receive royalties for endorsing the Bank’s deposit products, the amount of which represent a small fraction ... of the market rates paid to others who are considered deposit brokers within the meaning of section 29 of the FDI Act; (f) historically, as reported by the Bank, the retention rate for endorsed money market accounts obtained from Affinity Group members ranges from 80% to 85% and for certificates of deposits from 60% to 75% and such accounts and deposits are regarded by the Bank as core deposits of the Bank and are not used to replace core deposit run-off; and (g) the Affinity Groups do not know which members have made deposits with the Bank, nor do they keep any records of the amounts, rates or maturities of the deposits.

On the basis of these factors, the FDIC found that the affinity groups were not deposit brokers.

The FDIC cited the same factors in Advisory Opinion No. 93-31 (June 17, 1993), Advisory Opinion No. 93-34 (June 24, 1993) and Advisory Opinion No. 93-71 (October 1, 1993). In the latter opinion, though the seven factors were mixed, the FDIC found that certain “clubs” *were* “facilitating the placement of deposits” at a particular bank. In reaching this conclusion, the FDIC relied upon the fact that the clubs were “permitting the Bank to place posters and brochure racks in club offices and including information and materials on Bank deposit products in new member packets....” Such activities, said the FDIC, were “something other than ‘passive and indirect’ marketing activity....”

In the opinions discussed above, the most important factor used by the FDIC to determine whether a particular affinity group is “facilitating the placement of deposits” at a bank has been whether the affinity group is engaged in active marketing on behalf of the bank. When the affinity group engages in active marketing, the FDIC has classified the group as a deposit broker. In contrast, when the group’s activities are “passive and indirect,” the FDIC has found that the group is not a deposit broker.

This treatment of nonprofit affinity groups has been similar to the FDIC’s treatment of commercial or professional enterprises that provide marketing for banks. For example, in Advisory Opinion No. 93-31 (June 17, 1993), the FDIC found that certain accountants and lawyers acted as deposit brokers in referring clients to a particular bank in exchange for commissions. On the other hand, in Advisory Opinion No. 94-37 (July 19, 1994), the FDIC found that a bank’s own customers did not qualify as deposit brokers in referring acquaintances to the bank in exchange for “bonuses” (in the form of “an increased interest rate on either existing or future deposits in the Bank, cash or merchandise”). In determining that the customers were not deposit brokers, the FDIC relied upon the fact that “the cost of the incentive packages to the Bank [was] relatively small.”

When a non-bank entity is affiliated with the bank, the FDIC has found that the entity can be a deposit broker even if it collects no fees or commissions. For example, in Advisory Opinion No. 94-15 (March 16, 1994), an investment company referred clients to an affiliated bank for banking services. Though the company earned no commissions for making such referrals, the FDIC found that the company was a deposit broker. The FDIC explained this conclusion as follows:

[I]t is not unusual for deposit brokers to be compensated indirectly. For example, a deposit broker could take a portion of the interest that otherwise would be paid to the depositor. Alternatively, a deposit broker could steer its customers to a parent holding company or affiliate and derive compensation through a *quid pro quo* arrangement with the parent or affiliate. If we exempted commercial enterprises from the statutory restrictions whenever they arranged to be compensated indirectly, the statutory restrictions could be easily circumvented.

Another significant opinion involving referrals is Advisory Opinion No. 95-9 (June 29, 1995). That opinion involved a proposed arrangement among the following parties: (1) a bank; (2) a company that was a “wholesaler of insurance products”; and (3)

a group of “approximately 2,000 independent insurance agents.” Under the proposed arrangement, the bank would purchase the “wholesaler of insurance products.” Further, in order to “retain the goodwill” of the independent insurance agents, the bank would implement a plan “in which the agents would be compensated for referring their customers to the Bank for a variety of products and services (including trust, non-RESPA loan, and deposit products).”

The FDIC concluded that the independent insurance agents, in referring customers to the bank, would qualify as deposit brokers. In reaching this conclusion, the FDIC distinguished the insurance agents from those affinity groups that do not qualify as deposit brokers. The FDIC reasoned as follows:

The circumstances surrounding the involvement of the agents ... differ from those of affinity groups. In an affinity group, the Bank markets the Bank’s products to the affinity group’s members. The Bank, not the affinity group, conducts the marketing aimed at the affinity group members and that in every case, solicitation materials instruct the members to contact the Bank, not the affinity group. In the case at hand, however, the agent works ‘to put the Bank and the customer together.’ The agent would conduct the marketing and would provide advertising literature from the Bank to customers who might be interested in one of the Bank’s products. Under those circumstances, the role of agents differs from that of affinity groups, and consequently, they must be considered deposit brokers for purposes of the Act.

In summary, whether an entity is a nonprofit affinity group or a non-bank enterprise, the FDIC has found that the entity “facilitates the placement of deposits” by conducting active marketing on behalf of a bank. Also, the FDIC has found that an entity “facilitates the placement of deposits” by regularly referring members or customers to a bank. As a result, unless the entity is covered by one of the exceptions to the definition (one of which is discussed in the next section), the entity is a deposit broker.

C. Investment Companies

A securities firm or investment company exists to invest money in stocks, bonds and other investments including deposit accounts at banks on behalf of clients. Several brokerage firms, for example, operate sweep programs in which brokerage customers are given the opportunity to sweep (that is, transfer) their excess cash balances into an uninsured money market fund or a bank deposit to provide additional yield and insurance coverage on those funds. (At present, however, interest rates on sweeps from affiliates are both absolutely and relatively low.) Funds move between the securities firm and the bank account depending on the level of investment activity by the customer.

The sweep process varies among firms. In a common version, known as a “waterfall,” customer funds are swept into a series of banks. The balances at each bank are usually fully insured, although some amounts may be uninsured. The placement of

funds at each bank in the waterfall can be pro-rata or sequential, although sequential placement is more common.

If, for example, a customer has \$1.1 million dollars and is participating in a program with a five bank waterfall, funds will be placed in each bank up to the insurance limit beginning with Bank 1. In this example, assuming sequential placement, the customer's funds would be placed in each of the five different banks (\$250,000 in the first four banks and \$100,000 in the last bank) and remain fully insured. If the waterfall involved only four banks, the usual arrangement would place the excess \$100,000 into Bank 1 as uninsured funds. If placement was pro-rata, each of the five banks would receive \$220,000.

Generally speaking, a securities firm or investment company that places deposits in a bank on behalf of a customer is a deposit broker.⁵⁹ When the company provides its clients with the option of investing in deposit accounts, the company does not merely “facilitate the placement of deposits.” Rather, the company actually places deposits. Consequently, in most cases, the company is a “deposit broker” as defined in the FDI Act. Indeed, even when the investment company does not place the deposits but merely refers its clients to an affiliated bank, the company could be a deposit broker.⁶⁰

Of course, the company will *not* be a “deposit broker” if it is covered by one of the exceptions to the definition. For example, in Advisory Opinion No. 94-39 (August 17, 1994), the FDIC found that a particular brokerage firm was covered by the “primary purpose” exception. As previously discussed, the “primary purpose” exception applies to “an agent or nominee whose primary purpose is not the placement of funds with depository institutions.”⁶¹ In Advisory Opinion No. 94-39, the “primary purpose” exception was applicable because the purpose of the brokerage firm – in placing client funds at an insured bank – was to satisfy a reserve requirement enforced by the Securities and Exchange Commission and not to provide the clients with a deposit-placing service.

The FDIC also applied the “primary purpose” exception in Advisory Opinion No. 05-02 (February 3, 2005). In that case, a brokerage firm operated a sweep program in which idle client funds were swept into MMDAs at two affiliated banks. The FDIC determined that the “primary purpose” of the program was not to provide the clients with a deposit-placement service. Rather, the “primary purpose” was to facilitate the clients' purchase and sale of securities. In making this determination, the FDIC relied upon the following factors:

- The funds were not swept into time deposit accounts.
- The amount of swept funds did not exceed 10% of the total amount of program assets handled by the brokerage firm on a monthly basis.

⁵⁹ See generally *FAIC Securities, Inc. v. United States*, 768 F.2d 352 (D.C. Cir. 1985).

⁶⁰ See, e.g., Advisory Opinion No. 94-15 (March 16, 1994).

⁶¹ 12 U.S.C. § 1831f(g)(2)(I).

- The fees in the program were “flat fees” (i.e., equal “per account” or “per customer” fees representing payment for recordkeeping or administrative services and not representing payment for placing deposits).

The FDIC has adopted these factors as conditions or requirements applicable to any investment company that “sweeps” idle client funds into deposit accounts at affiliated banks. If the requirements are satisfied, the company is not a deposit broker under the “primary purpose” exception with respect to the “swept” funds. On the other hand, if the requirements are not satisfied, the company is a deposit broker. To determine compliance with the 10% limit, the FDIC requires the submission of monthly reports.

Regardless of whether the deposits in a particular sweep program qualify as brokered deposits, the sponsor usually attempts to structure the program so that the deposits are eligible for “pass-through” or “per client” insurance coverage. Below, the insurance coverage of brokered deposits is discussed in detail.

D. Pass-Through Arrangements

Under the FDIC’s insurance regulations, “[f]unds owned by a principal or principals and deposited into one or more deposit accounts in the name of an agent, custodian or nominee, shall be insured to the same extent as if deposited in the name of the principal(s).”⁶² The insurance coverage “passes through” the agent or custodian to the actual owners. Thus, funds belonging to each owner are aggregated with any other funds held by the same owner in the same ownership capacity at the insured bank and insured up to the \$250,000 limit.

“Pass-through” insurance coverage as described above is not available unless certain requirements are satisfied. First, the account records of the bank must disclose the agency relationship among the parties.⁶³ Second, the identities and interests of the actual owners must be ascertainable either from the account records of the bank or records maintained by the agent or other party.⁶⁴ Third, the agency or custodial relationship must be genuine. Through this relationship, the deposits at the FDIC-insured bank must belong to the purported owners and not to the purported agent or custodian.⁶⁵

The third requirement above is not satisfied when the purported owner of a deposit enters into a creditor/debtor relationship (as opposed to a principal/agent relationship) with the purported custodian of the deposit. For example, the FDIC has taken the position that the third requirement is not satisfied when an investor in a brokered deposit program possesses a *pro rata* interest in a pool of deposits as opposed to possessing interests in specific deposits. The FDIC has also taken the position that an agency relationship does not exist when the broker or purported agent changes the terms

⁶² 12 C.F.R. § 330.7(a).

⁶³ See 12 C.F.R. § 330.5(b)(1).

⁶⁴ See 12 C.F.R. § 330.5(b)(2).

⁶⁵ See 12 C.F.R. § 330.3(h); 12 C.F.R. § 330.5(a)(1).

of the deposit contract offered by the insured depository bank. In Advisory Opinion No. 02-02 (May 20, 2002), the FDIC explained this point as follows:

Some would-be deposit brokers enter into debtor/creditor relationships with their customers -- as opposed to agency relationships -- by changing the terms of the CD issued by the insured depository institution. For example, in purporting to sell interests in a particular CD, a broker might offer an interest rate and a maturity date that do not match the interest rate and maturity date of the CD. By changing the terms, the broker assumes independent debt obligations. By accepting these changed terms, the customer takes an ownership interest in a claim against the broker instead of an ownership interest in the CD. Consequently, the CD will not be insurable on a “pass-through” basis to the customers.

The rules above apply to deposit accounts held by deposit brokers, which can include banks. A bank acts as a deposit broker when it places a depositor’s funds with other banks in order to obtain full insurance coverage for the depositor.

In 2010, the FDIC issued guidance on the requirements necessary for deposit insurance to “pass-through” the holder of the account (the bank acting as agent) to the owners of the funds (the depositor as principal).⁶⁶

E. Bank Networks

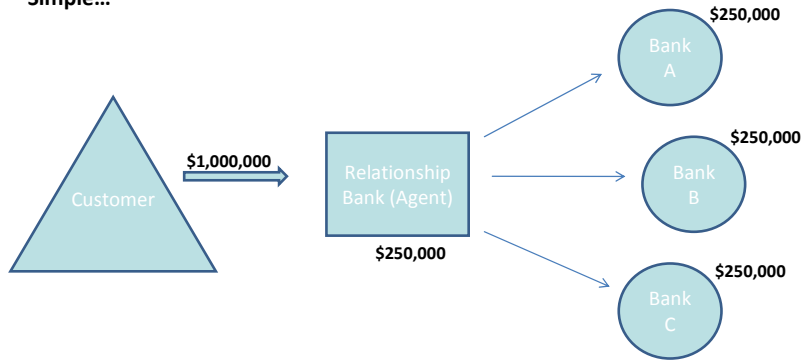
In some cases, banks have participated in networks established for the purpose of sharing deposits. In such a network, a participating bank places funds at other participating banks through the network in order for its customer to receive full insurance coverage.⁶⁷ The structure of deposit placement networks can be uncomplicated or complex and can be established between either affiliated or nonaffiliated institutions. In the simplest arrangement, the bank places their customer’s funds in excess of the deposit insurance limits into other depository institutions. For example, if a customer deposits \$1 million into his or her institution, the customer’s bank maintains the deposit insurance limit—\$250,000—and places the excess of \$750,000 at three other institutions in insured \$250,000 increments.

⁶⁶ See Financial Institution Letter 29-2010 (June 7, 2010) with attached “Guidance on Deposit Placement and Collection Activities.”

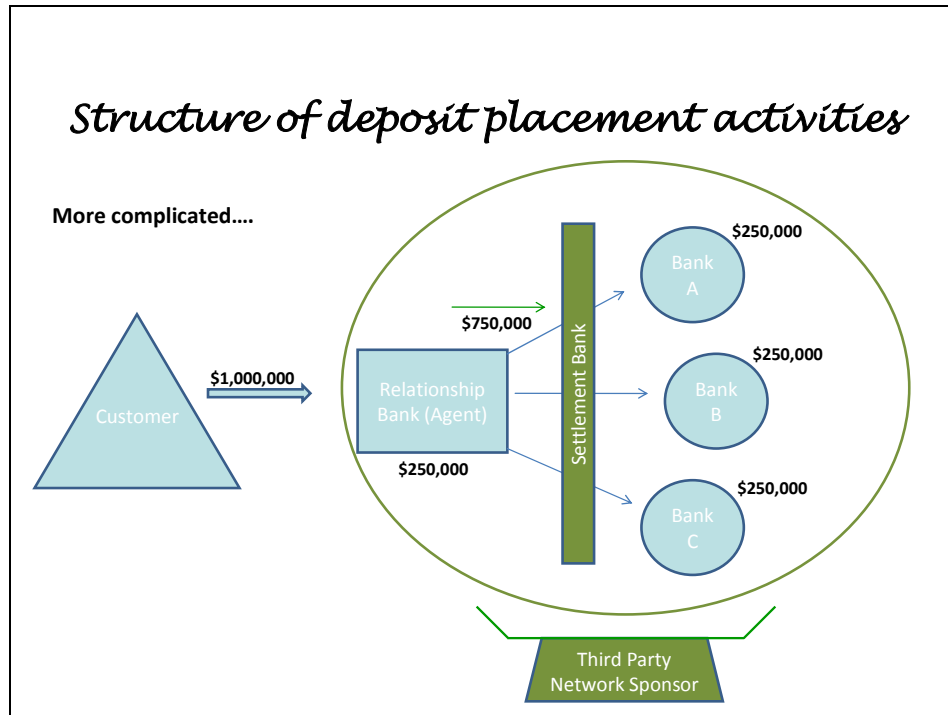
⁶⁷ The transferring bank may receive an equal amount in exchange for the transferred funds from the other bank.

Structure of deposit placement activities

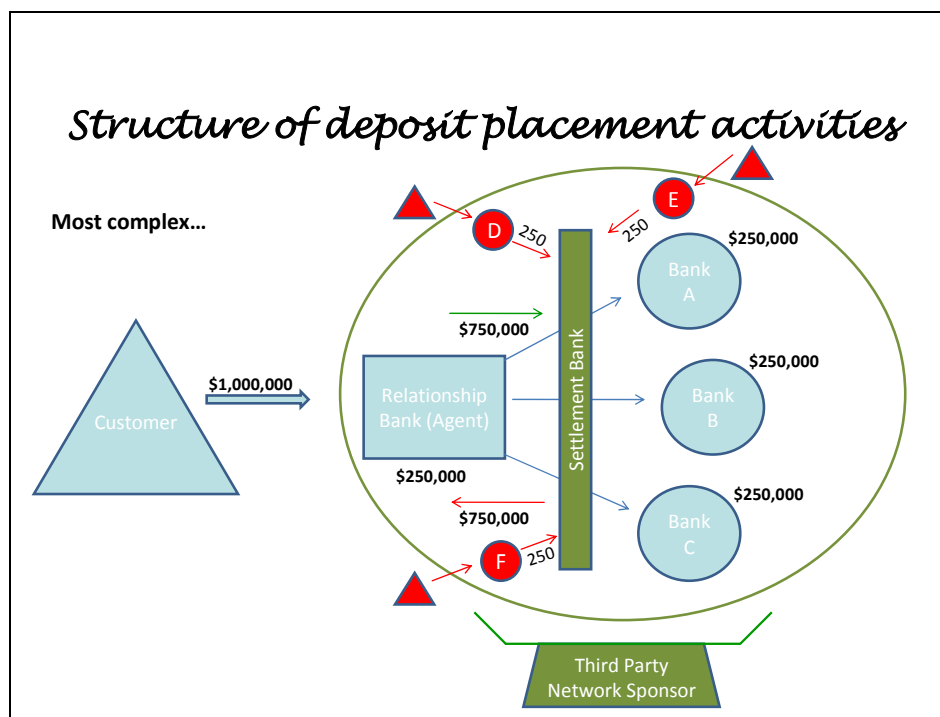
Simple...



In more complex arrangements, the customer's bank may be part of a deposit placement network that is managed by a third party network sponsor. As was the case in the example above, institutions join the network to facilitate the placement and receiving of funds in excess of the deposit insurance limit. In this situation, when the customer deposits \$1 million, the customer's bank sends the uninsured portion to a settlement bank, which then places the funds at other banks within the network at the direction of the network sponsor.



At its most complex level, the network sponsor is facilitating the placement of millions of dollars in excess funds for all of the banks in the network. The settlement bank may be sending and receiving multiple deposits. Often times, these are established through reciprocal arrangements, in which institutions within the network are both sending and receiving identical amounts simultaneously (reciprocal deposits). This reciprocal agreement allows the bank to maintain the same amount of funds they had when the customer made their initial deposit while ensuring that deposits well in excess of the \$250,000 deposit limit are fully insured. The size of the deposit to be placed is only limited by the number of institutions in the network that are willing and able to accept the deposit multiplied by the \$250,000 insured deposit limit, resulting in maximum individual deposit levels in the tens of millions of dollars.



In Advisory Opinion No. 03-03 (July 29, 2003), the FDIC found that the deposits in such a network would be insured on a “pass-through” basis (assuming satisfaction of the FDIC’s requirements).

The FDIC in Advisory Opinion No. 03-03 did *not* address whether the banks in the network (or the network owner) qualified as deposit brokers. No dispute existed as to the status of the banks because: (1) the banks admittedly placed deposits belonging to others (their customers) at other banks; and (2) the stated purpose of the banks in making these deposit placements was to obtain increased deposit insurance coverage for their customers. Thus, the banks satisfied the broad basic definition of “deposit broker.” Moreover, the banks were not covered by the “primary purpose” exception. Hence, the deposits were brokered deposits.

F. Prepaid Products

In General Counsel’s Opinion No. 8, the FDIC took the position that the funds underlying stored value cards and other types of prepaid products qualify as insurable “deposits” whenever the funds have been placed at an insured bank.⁶⁸ The FDIC also took the position that the deposits may or may not be insurable to the cardholders, depending upon the circumstances. In some cases, the deposits will be insurable not to the cardholders but to the company that places the funds at the bank (before selling or distributing the cards).

⁶⁸ 73 Fed. Reg. 67155 (November 13, 2008).

In this opinion, the FDIC did not address the question of whether the deposits underlying stored value cards or other prepaid products qualify as brokered deposits. Indeed, no published advisory opinion addresses this issue. It appears, however, that some of these deposits may qualify as brokered deposits while others may not.

For example, a particular program might be structured so that a bank sells prepaid cards directly to the cardholders (without the involvement of retail stores or any other intermediaries). In the absence of a third-party agent or custodian, the deposits held by the bank (to be accessed by the cardholders when they use their cards at merchant point-of-sale terminals) would not qualify as brokered deposits. In this situation, the bank presumably would maintain records as to the identities and interests of the cardholders so that the deposits would be eligible for “per cardholder” insurance coverage. Indeed, the bank could maintain a separate account for each cardholder.

A different program might be structured so that a separate company (not the bank) sells or distributes cards to the cardholders. Further, the program might be structured so that the company places its own corporate funds (not the cardholders’ funds) at the bank (again, to be accessed by the cardholders when they use their cards at merchant point-of-sale terminals). In this situation, in the absence of a third party, the deposits would not qualify as brokered deposits. Of course, the deposits also would not be eligible for “pass-through” insurance coverage to the cardholders.

Finally, a program might be structured so that a card distributor (not the bank) acts as an agent or custodian for the cardholders in placing or holding deposits at a bank. Such deposits would be eligible for “pass-through” insurance coverage (assuming the satisfaction of the FDIC’s requirements for “pass-through” coverage), but the deposits also would qualify as brokered deposits unless the agent is covered by one of the exceptions to the definition of “deposit broker” (such as the “primary purpose” exception).

In summary, the deposits underlying prepaid products may or may not qualify as brokered deposits, depending upon the structure of the program.

V. FDIC Use of the Core and Brokered Deposits Concepts

A. Supervision

Core and brokered deposits play a role in bank supervision. Examiners consider the presence of core and brokered deposits when evaluating liquidity management programs and assigning liquidity ratings at insured depository institutions. Core deposits have historically been categorized as stable, less costly deposits obtained from local customers that maintain a relationship with the institution, while brokered deposits are considered volatile, interest rate sensitive deposits from customers in search of yield. However, examiners do not necessarily view the presence of any certain source of funding as inherently bad. The FDIC’s Risk Management Manual of Examination Policies states that the acceptance of brokered deposits by well-capitalized institutions is subject to the same considerations and concerns applicable to any other type of funding.

These concerns relate to volume, availability, cost, volatility, maturities, and how the use of such funding fits into the bank's overall liability and liquidity management plans. Furthermore, there should be no particular stigma attached to the acceptance of brokered deposits per se and the proper use of such deposits should not be discouraged.⁶⁹

In accordance with the Interagency Guidance on Funding and Liquidity Risk Management, examiners place an emphasis on the bank's risk management policies and practices. Examiners assess whether management has properly identified, measured, monitored and controlled funding risks. Other considerations include funding diversification, cost, stability, contingency funding, and growth.

In addition to the current level and prospective sources of liquidity and funds management practices, the liquidity rating is assigned in the context of other financial factors. Banks with strong capital positions and earnings are likely to be able to easily fund ongoing operations and have no trouble raising liquidity for unforeseen events. Conversely, banks with low levels of capital, weak earnings, or asset deterioration, may find financing to be more expensive or borrowing lines reduced.

Numerous industry commenters indicated that supervisors should adopt a more formal "spectrum" approach based upon deposit characteristics, perhaps to replace the brokered deposit statute and the core deposit concept. As discussed above, through the supervisory process, examiners already consider deposit characteristics when assessing an institution's liquidity position. To develop a formal approach—to replace the statute, or change the supervisory approach or assessment system—would require that banks undertake considerably more tracking and reporting of deposits. The costs of doing so would appear to outweigh the potential benefits.

B. Assessments

The FDIC's risk-based deposit insurance assessment system takes core and brokered deposits into account in three ways when determining assessment rates.

Core deposits ratio

The assessment rate of a bank whose assets are \$10 billion or greater generally depends upon its CAMELS component ratings and on several financial ratios, including its ratio of core deposits to total liabilities. The core deposits ratio is defined as total domestic deposits excluding brokered deposits and uninsured non-brokered time deposits divided by total liabilities. The FDIC includes the core deposits ratio because it is one of the measures most relevant to assessing a large bank's ability to withstand funding related stress and has been found to be statistically significant in predicting a large bank's long-term performance.

⁶⁹ <http://fdic.gov/regulations/safety/manual/section6-1.html#liabilities>.

The adjusted brokered deposit ratio

The assessment rate of a small bank (generally, one whose assets are less than \$10 billion) that is well capitalized and well managed (that is, its composite CAMELS rating is 1 or 2) depends upon its CAMELS component ratings and on several financial ratios, including an adjusted brokered deposit ratio. A bank's assessment rate will increase if its total gross assets were more than 40 percent greater than they were four years previously, after adjusting for mergers and acquisitions, and its brokered deposits make up more than 10 percent of its domestic deposits. Reciprocal deposits are excluded from brokered deposits for purposes of making this calculation, but sweeps, referrals from affiliates and all other brokered deposits are included.

The brokered deposit adjustment

The assessment rate of a bank that is less than well capitalized or that is less than well managed (that is, its composite CAMELS rating is 3, 4 or 5) increases by up to 10 basis points if its ratio of brokered deposits to domestic deposits is greater than 10 percent. This brokered deposit adjustment takes into account all brokered deposits, including sweeps and reciprocal deposits.

VI. Studies and Analyses

A. Material Loss Reviews

Brokered deposits can be a valuable funding source when banks manage them well and use them to grow prudently. However, “the use of brokered deposits by problem banks has often been associated with abuses and contributed to failures with consequent losses to the deposit insurance funds. They can represent a consistent and heavy funding source to support unsound or rapid expansion of loan and investment portfolios.”⁷⁰

The Offices of the Inspector Generals (OIGs) for the FDIC, the Office of the Comptroller of the Currency (OCC) and Federal Reserve have identified some of these abuses in MLRs of failed depository banks.⁷¹ A review of over 20 MLRs and the OIGs' Semiannual Reports to Congress reveal several common themes among banks that failed in 2008, 2009, and 2010.

- Many failed banks operated with an aggressive growth strategy, typically by increasing higher risk assets that were extremely vulnerable to market or

⁷⁰ The FDIC's Manual of Examination Policies.

⁷¹ When the DIF incurs a material loss, section 38(k) of the FDI Act requires the Inspector General of the primary regulator of the failed financial bank that caused the loss to conduct a material loss review to ascertain why the bank's problems resulted in the loss to the DIF and to make recommendations for preventing future losses. Until passage of Dodd-Frank, a loss was defined to be material if it exceeded the greater of \$25,000,000 or 2 percent of the bank's total assets at the time the FDIC was appointed receiver. Dodd-Frank amended section 38(k) by increasing the materiality threshold from \$25 million to \$200 million in losses for failures that occur from January 1, 2010 through December 31, 2011.

economic downturns. In most cases, the higher risk asset concentrations were CRE loans, predominantly acquisition development and construction (ADC) and land loans. Examples of other higher risk assets included: private label mortgage-backed securities, non-traditional mortgages (including option adjustable rate mortgages), high loan to value home equity loans, and sub-prime auto loans.

- Banks often failed to expand credit risk management systems in line with their increasing size and complexity, resulting in systems insufficient to identify, monitor, and appropriately manage asset concentrations.
- Because local deposits were unable to support their rate of asset growth, many banks turned to noncore funding, particularly brokered deposits and Federal Home Loan Bank (FHLB) borrowings. Other noncore sources included Internet CDs and federal funds purchased.
- When the downturn in real estate and overall economic conditions led to losses in riskier assets, the resulting drop in capital ratios or implementation of enforcement actions resulted in banks becoming less than well capitalized for PCA purposes, triggering restrictions on brokered deposits. Lines of credit (at, for example, the FHLB and Federal Reserve Bank) and access to federal funds purchased were reduced or eliminated in response to the bank's deteriorating financial condition.
- For those banks most reliant on noncore funding, a liquidity crisis developed and accelerated failure. For those with liquidity, operating losses eventually wiped out capital.

In most instances, the MLRs that the FDIC reviewed identified concentrations in high-risk assets and losses on those assets as the major factor that led to failures. Although many of the MLRs mentioned reliance on noncore funding, particularly brokered deposits and FHLB borrowings, as a cause of failure, the MLRs rarely stated that failure was the direct result of this reliance. However, without brokered deposits and FHLB borrowings, many of the banks that grew rapidly could probably not have done so.

Appendix X contains specific findings from MLRs and OIG Semiannual Reports to Congress.

B. Studies of Core and Brokered Deposits

In connection with this study, the FDIC undertook several statistical analyses of core and brokered deposits and conducted a literature review of academic studies on core and brokered deposits.⁷² A summary of the FDIC's analyses and the literature review follow.

⁷² Appendix C contains descriptive statistics on the use of core and brokered deposits.

Core deposits

Multiple studies use core deposits as a proxy for franchise value, as these deposits provide a safe, liquid source of funding for institutions. The studies define core deposits in slightly different ways. For example, studies that focus on the duration and franchise value of core deposits tend to include in their definition demand deposits, NOW accounts, savings deposits, and MMDAs. These studies typically do not include time deposits and instead focus on valuing deposits with no stated maturity. Studies that focus on the relationship between core deposits and losses at failed banks include core deposits based on the UBPR definition or based on the accounts' insured status.

In calculating the duration of core deposits, most studies must make assumptions about interest rate sensitivity, effective maturity, and retention rates, including when and to what degree a bank responds to changes in market interest rates. After making these assumptions, these studies estimate durations for core deposits as ranging from 6 to 15 months for money market deposit accounts, one to two years for transaction accounts, 7 years for NOW accounts, and 3 years for savings accounts.⁷³ One study, using actual retention rates from 5 institutions, found longer durations for each of these types of accounts.⁷⁴

Probability of Failure: Studies on core deposits at failed banks tend to focus on loss given default rather than probability of default. An internal FDIC study, however, examines the relationship between core deposits and the probability of bank failure from 1988 to 2011.⁷⁵ (See Appendix B.) This research shows that, with a high degree of statistical confidence, core deposits, defined as total domestic deposits less large time deposits and fully insured brokered deposits,⁷⁶ are associated with a lower probability of default over a three-year horizon. Core deposits may reduce a bank's probability of failure because they typically provide a bank with a stable and relatively cost-effective source of funds and are a direct indication of a bank's valuable customer relationships, which determine, in part, the economic value of a bank's franchise. FDIC research also

⁷³ See, e.g., David Hutchison and George Pennacchi, "Measuring Rents and Interest Rate Risk in Imperfect Financial Markets," *Journal of Financial and Quantitative Analysis*, (September 1996): 399-417; David Hutchison, "Value and Duration in Retail Financial Markets: The Economics of Bank Deposits," (2005); and James M. O'Brien, "Estimating the Value and Interest Rate Risk of Interest-Bearing Transactions Deposits," (working paper no. 2000-53, Division of Research and Statistics, Board of Governors of the Federal Reserve System, November 2000); David M. Ellis and James V. Jordan, "The Evaluation of Credit Union Non-Maturity Deposits," National Economic Research Associates, (study prepared for the National Credit Union Administration, September 10, 2001), <http://www.nera.com/extImage/4918.pdf>.

⁷⁴ Richard G. Sheehan, "Valuing Core Deposits," (April 2004), <http://www.nd.edu/~finance/020601/news/Sheehan%20Paper%202.pdf>.

⁷⁵ Internal FDIC research does not include in its sample failed thrift institutions supervised by the FHLBB that were resolved by the FSLIC. FHLBB supervised thrifts (insured by FSLIC) received regulatory forbearance, were allowed to operate with lower net worth and were closed under rules and procedures that differ significantly from the 1991 FDICIA prompt corrective action rules that apply over much of the sample period. As a result, analysis using this data may be misleading.

⁷⁶ This definition is approximately equivalent to the current UBPR definition.

finds that higher core deposits are associated with more conservative lending practices and are associated with lower levels of nonperforming loans three years later.⁷⁷

Loss Given Failure: All studies consistently find that core deposits decrease losses to the FDIC.⁷⁸ Internal FDIC research finds that core deposits reduce the FDIC's loss rates at failed banks. These lower loss rates can be explained by the fact that core deposits enhance franchise value and are associated with more conservative lending practices. Bennett and Unal (2010) find that core deposits, defined as the total amount of domestic deposits less the amount of time deposits exceeding the deposit insurance coverage limit, lead to a lower net loss on assets.⁷⁹ Osterberg and Thomson (1995) also show that resolution costs decrease with higher core deposits, defined as domestic deposits under the deposit insurance coverage limit.⁸⁰ James (1991) finds the same result while measuring losses from 1985 through 1988 in a different way and shows that core deposits increase the premium paid for failed institutions.^{81, 82}

Other Studies: A few papers examine the relationship between core deposits and lending and find that core deposits can be beneficial to banks in the face of exogenous shocks. Cornett, et al. (2010) find that, between the beginning of 2006 and the second quarter of 2009, core deposits, defined as transaction deposits plus other insured funds, helped banks sustain lending.⁸³ Berlin and Mester (1999) find that from 1977 through 1989, banks funded more heavily with core deposits, defined as those under the deposit insurance limit, were able to insulate borrowers from credit shocks by providing smaller increases in loan markups compared to banks with lower levels of core deposits.^{84, 85} In

⁷⁷ To test the relationship between loan performance and balance sheet variables, the analyses define nonperforming loans in two different ways, both adjusting for mergers. In the first definition, nonperforming loans include loans past due 90 days or more, nonaccrual loans, and other real estate owned. In the second definition, nonperforming loans include loans past due 90 days or more and nonaccrual loans only. Core deposits retain their significant negative association with better loan performance under both definitions. In contrast, brokered deposits are significantly positively associated with poorer loan performance under both nonperforming loan definitions.

⁷⁸ Wherever time deposits are included in the definition of core deposits, these amounts could contain brokered deposits, including reciprocal deposits.

⁷⁹ Rosalind L. Bennett and Haluk Unal, "The Cost Effectiveness of the Private-Sector Reorganization of Failed Banks," (working paper, no. 2009-11, Federal Deposit Insurance Corporation, January 2011).

⁸⁰ William P. Osterberg and James B. Thomson, "Underlying Determinants of Closed-Bank Resolution Costs," in *The Causes and Costs of Depository Institution Failures*, ed. Allin F. Cottrel, Michael S. Lawlor, and John H. Wood, Kluwer Academic Press (1995): 75-92.

⁸¹ Christopher James, "The Losses Realized in Bank Failures," *The Journal of Finance*, vol. 46, no. 4, (September 1991): 1223-1242.

⁸² James measures losses as the difference between the book value of a bank's assets at the time of its closure and the value of the assets in an FDIC receivership or the value of the assets to an acquirer.

⁸³ Marcia Millon Cornett, Jamie John McNutt, Philip E. Strahan, and Hassan Tehranian, "Liquidity Risk Management and Credit Supply in the Financial Crisis," *Journal of Financial Economics*, vol. 101, no. 2 (August 2011): 297-312.

⁸⁴ Mitchell Berlin and Loretta J. Mester, "Deposits and Relationship Lending," *Review of Financial Studies*, vol. 12, no. 3 (Fall 1999): 579-607.

this way, a bank’s use of core deposits, the authors argue, helps the bank form long lasting lending relationships.

Conclusion: The evidence from statistical analyses unequivocally shows that, all else equal, core deposits reduce the probability that a bank will fail and reduce the losses to the FDIC in the event of failure.

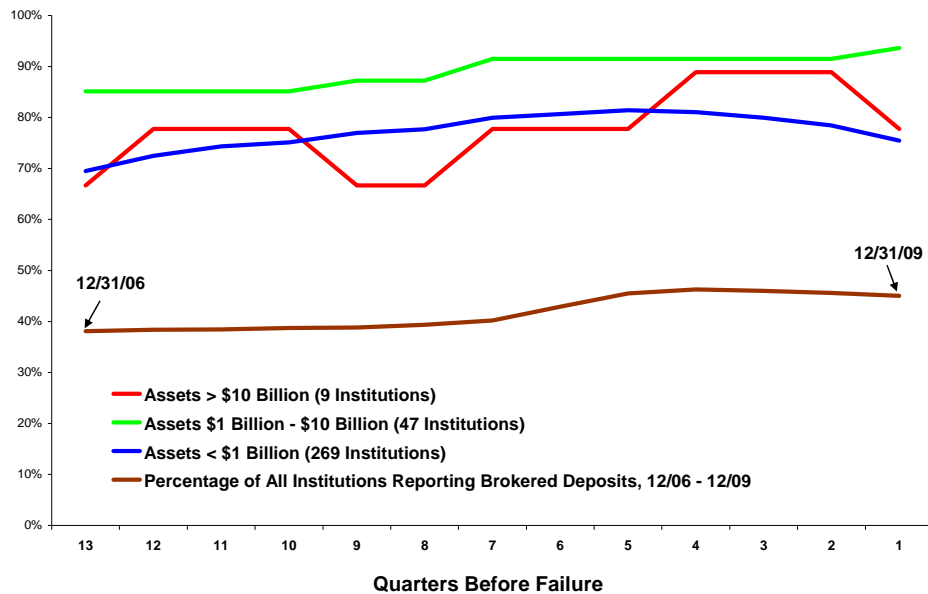
Brokered deposits

Probability of failure

Findings: On average, failing and failed banks are more likely to have brokered deposits than other banks. (See Chart 1.) Internal FDIC research finds that increasing use of brokered deposits, as defined by the statute, results in a higher estimated probability of failure over a three-year horizon. The effect of brokered deposits on the probability of failure is economically as well as statistically significant. (See Appendix B.)

Chart 1

Percentage of Failed Banks Reporting Brokered Deposits
In the Quarters before Failure



⁸⁵ The authors exclude from their sample banks that failed or merged during the reporting period, in order to prevent banks that engaged in excessively risk investment strategies that ultimately led to failure from driving their results.

For the most recent crisis, internal FDIC analysis also supports the finding that brokered deposits net of reciprocal deposits are positively correlated with probability of failure over a two-year horizon. Data on reciprocal deposits are only available for a limited period (June 2009-December 2010).

Bennett and Unal (2010) analyze the effect of brokered deposits on resolution outcomes, namely, whether a failed institution is more likely to undergo a private-sector reorganization or an FDIC liquidation.⁸⁶ They find that high levels of brokered deposits one quarter prior to failure from 1986 through 2007 increase the likelihood of an FDIC liquidation compared to a private-sector reorganization.

Substitute for Core Deposits: As several industry analyses have noted, brokered deposits do not themselves cause failure; they are merely correlated with or facilitate behaviors that do cause failure. The FDIC examined the means by which brokered deposits increase an institution's probability of failure. The FDIC's research finds that, on average, brokered deposits are used primarily as a substitute for core deposit funding. As discussed above, banks with a higher share of core deposit funding experience a lower probability of default. Because banks that use brokered deposits on average substitute brokered deposits for core deposits, on average, banks that use brokered deposits face an elevated probability of default. If a bank substitutes brokered deposits for equity, the effect on a bank's projected probability of default is much larger than for a core deposit substitution, but the data suggest that this substitution has been historically less common. The FDIC's research also shows that when brokered deposits are used as a substitute for other (noncore) bank deposits and other bank liabilities, brokered deposits do not have a statistically measureable effect on the probability of bank failure, provided the bank's leverage ratio, asset growth and nonperforming loan rate remain unchanged.

Risk Appetite: The use of brokered deposits may also be a general indicator of a higher risk appetite on the part of bank management, which may be reflected in the assets the bank purchases. The FDIC examined the relationship between brokered deposits and loan performance and found that brokered deposits are correlated with higher nonperforming loan ratios three years later, controlling for lagged asset growth, interest expense, loan concentration ratios, core deposits and equity.⁸⁷ On average, banks that use brokered deposits have higher nonperforming loan ratios than banks that do not use brokered deposits, and the more a bank relies on brokered deposits, the higher its nonperforming loan ratio three years later. The association between brokered deposits and higher nonperforming loan ratios suggests that institutions that are willing to use riskier funding sources are also willing to invest in higher risk loans. This suggestion is confirmed by the finding that higher nonperforming loan ratios are correlated with a higher probability of failure within the next three years. In addition, as discussed above, FDIC research finds that banks with greater use of brokered deposits have lower core

⁸⁶ A private-sector reorganization is defined as one where 25 percent or more assets are purchased by an acquiring bank. The authors argue that percentages of this size preserve the link between the loans and deposits.

⁸⁷ See footnote 77.

deposit-to-asset ratios. This implicit shift in a bank's liability structure contributes to the increase in the bank's fragility and greater likelihood of failure.

Loan Concentrations: FDIC research discussed above also controls for loan concentrations; these concentrations include CRE, C&D, commercial and industrial (C&I), and consumer loans, which separately increase an institution's probability of failure. Several other studies also find that brokered deposits increase the probability of failure even after controlling for loan concentrations. Cole and White (2010) find that brokered deposit levels in the three years prior to 2009 increase an institution's probability of being technically insolvent in 2009, even when controlling for loan concentrations, including 1-4 family mortgages, multifamily mortgages, C&D, non-farm non-residential mortgages, C&I, and consumer loans as a portion of total assets.^{88,89} Using data from the third quarter of 2008 through the third quarter of 2010, Blinder and Shastri (2011) include commercial and CRE loans as possible indicators of failure and also find that brokered deposits (net of reciprocal deposits) increase an institution's likelihood of failure.⁹⁰ Flannery (2011) finds that replacing core deposits with brokered deposit funding tends to raise an institution's default probability three years later for banks that failed between 2008 and 2010, even when controlling for concentrations in CRE, C&D, C&I, and other loans.⁹¹

Growth: Because commenters argued that brokered deposits can lead to growth and because the FDIC has observed that several failed banks with significant amounts of brokered deposits had also grown rapidly, the FDIC examined the relationship between brokered deposits and growth. FDIC research finds that brokered deposits, measured as

⁸⁸ Rebel A. Cole and Lawrence J. White, "Déjà Vu All Over Again: The Causes of U.S. Commercial Bank Failures *This Time Around*," *Journal of Financial Services Research* (Forthcoming), (DRAFT December 1, 2010).

⁸⁹ The authors define a "technically" insolvent bank as one whose equity and loan loss reserves total less than half of the value of its nonperforming assets. These banks are included in anticipation of future failure after the paper was written. There were 148 "technically" insolvent banks at the end of 2009. Of the 74 commercial banks that failed during the first half of 2010, 57 were counted by the authors as "technically" insolvent in 2009. In addition, the authors include 117 actual commercial bank failures from 2009. A total of 126 commercial banks failed in 2009, but it is not clear why the authors only cite 117 failures. The authors include commercial banks and not thrifts because, in their view, thrifts operate under a different charter and are usually focused in directions that are different from those of commercial banks. The authors also separate their sample into those banks that failed and those defined as "technically" insolvent that did not fail in 2009. When looking at only those banks that failed, the results for brokered deposits do not hold. The results for only those banks defined as "technically" insolvent were the same as the results for the whole sample.

⁹⁰ Alan Blinder and Arun Shastri, Promontory Interfinancial Network, "Estimated Effects of CDARS Reciprocal Deposits on the Likelihood of Bank Failure," (attachment, comment letter from Promontory Interfinancial Network on the FDIC Notice of Proposed Rulemaking, RIN 3064-AD66, Assessments, Large Bank Pricing, Assessment Base and Rates, January 3, 2011).

⁹¹ Mark Flannery, "Data Driven Deposit Insurance Assessments," (attachment, comment letter from Promontory Interfinancial Network on the Core and Brokered Deposit Study, May 1, 2011) and Mark Flannery, "Data Driven Deposit Insurance Assessments: Further Results," (attachment, comment letter from Promontory Interfinancial Network on the Core and Brokered Deposit Study, June 23, 2011) (collectively, "Flannery (2011)").

the three year average ratio of brokered deposits to assets, are significantly correlated with higher three-year asset growth rates from 1989 through 2009. This research also finds that average growth rates increase as banks fund a larger share of assets with brokered deposits.⁹² FDIC research also finds that asset growth over the past one, two, and three years is correlated with a higher probability of failure within the next three years.

The correlation between brokered deposits and asset growth is also evidenced in Benston (1986): savings and loan associations in 1983 and 1984 with growth rates over the previous year above 50 percent obtained a higher proportion of their funding from brokered deposits (20 percent) compared to slower-growing institutions (those with growth rates between 25 and 50 percent), which only obtained 8 percent of their increase in liabilities from brokered deposits.⁹³

Other Studies: As discussed above, Flannery (2011) finds that replacing core deposits with brokered deposit funding tends to raise an institution's default probability three years later after controlling for loan concentrations and asset growth. He argues, however, that this finding is the result of the correlation between brokered deposits and other risky behavior and that higher funding costs are actually more predictive of bank failure than are brokered deposit levels. Similarly, Rossi (2011) argues that brokered deposits do not lead to growth, but that brokered deposit demand is merely a result of a bank's decision to grow assets and its choice of funding.^{94, 95}

Benston (1986) finds no relationship between brokered deposits, as a percent of earning assets, and failure within one year. Benston does find some evidence that very substantial one-year increases in brokered deposits are associated with failure. However, he states that "because great increases in brokered deposits and total liabilities (growth) tend to be coincident, it is not possible to say which is causally related to failure." However, his findings are based on the experience of savings and loan associations from 1981-1985 only, and the data may be less than ideal due to issues related to FSLIC resolutions.⁹⁶

⁹² Modeling the relationship between brokered deposits and bank growth rates is complex since both variables are bank management choices. The analysis finds that banks using brokered deposits often exhibit higher 3-year growth rates, which is likely a result of a series of choices made by bank management that drive both a bank's growth rate and its use of brokered deposits.

⁹³ George J. Benston, "An Analysis of the Causes of Savings and Loan Association Failures," *The Monograph Series in Finance and Economics*, Monograph 1985-4/5, Salomon Brothers Center for the Study of Financial Institutions, (1985).

⁹⁴ Clifford V. Rossi, "Decomposing the Impact of Brokered Deposits on Bank Failure: Theory and Practice," (study prepared for the Anthony T. Cluff Fund, September 9, 2010), http://www.fsround.org/publications/pdfs/2011/brokereddepositsreport_rev.pdf.

⁹⁵ The paper assumes that asset growth drives brokered deposit growth without properly testing for the direction of this causality. In addition, the model used in the analysis does not take into account the fact that a bank makes its asset and liability choices simultaneously. The paper thus suffers from endogeneity problems, calling its conclusions into question.

⁹⁶ See footnote 75.

Conclusion: On balance, data confirm the observations in the MLRs that shares of brokered deposit funding used at failed institutions were significantly higher than at non-failed institutions during both the crisis of the 1980s and early 1990s and the current crisis. The FDIC's research (and that of others) finds that in both crisis periods, even controlling for other possible risk factors, brokered deposits are correlated with a higher probability of failure. Brokered deposits typically are used as a substitute for core deposit funding. They are also associated with higher levels of asset growth and higher subsequent nonperforming loan rates, indicating that the use of brokered deposits often facilitates growth in high risk lending. Brokered deposits are thus an indicator of a heightened risk of failure.

Loss given default

Findings: Internal FDIC research shows that higher levels of brokered deposits increase DIF loss rates when institutions fail, even when controlling for bank size and loan performance. For the most recent crisis, internal FDIC research finds that brokered deposits net of reciprocal deposits are positively correlated with higher loss given default.

FDIC research also finds that loss rates are substantially higher in 2007, 2008, 2009, and 2010 than they were in the crisis of the 1980s and early 1990s. Against this backdrop of higher loss rates, brokered deposit use has increased substantially since the earlier crisis as well. The mean value of the brokered deposits to assets ratio for the period 1986 through 1992 was 0.504 percent. In contrast, that ratio was 3.816 percent for the period 2008 through 2010.

For the most recent crisis, the analysis showed a positive association between the brokered deposits to assets ratio and the loss given failure rate. The FDIC finds that failed banks with higher brokered deposits to assets ratios tend to have higher loss rates. (See Table 1). For example, for bank failures between 2007 and 2010, a failed institution with brokered deposit levels in the 75th percentile (18 percent of total assets) had a loss rate that was 7 percent above the average loss rate, while a failed institution with brokered deposit levels in the 95th percentile (44 percent of total assets) had a loss rate that was 22 percent above the average loss rate.

Table 1

Insured Institutions that Failed Between
January 1, 2007 and March 31, 2011

Percentile	Number of Failed Institutions in Group	Cutoff Ratio of Brokered Deposits to Total Assets	Average Loss Rate	Average Loss Rate to Average Loss for All Failures
98th	8	56.64%	39.47%	1.38
95th	19	43.78%	34.75%	1.22
90th	36	32.61%	34.01%	1.19
75th	89	17.89%	30.61%	1.07
All Failures	351	-	28.59%	1.00

Means of Operation: Internal FDIC research also analyzes the means by which brokered deposits lead to higher losses in the event of failure. The analysis shows that the sources of heightened loss are primarily core deposit substitution effects, but there is also evidence that failed banks that use brokered deposits have higher leverage. Substituting brokered deposits for core deposits decreases a bank's franchise value (because core deposits contribute to franchise value and brokered deposits do not, as discussed above), thus increasing losses to the FDIC. In addition, when brokered deposits are used as a substitute for bank equity, there is less capital available to buffer DIF losses when a bank fails. FDIC research also finds that banks that fund themselves with brokered deposits tend to have higher nonperforming loans, which suggests that brokered deposit use is associated with riskier strategies and investment in riskier loans. As a result, additional losses from discounting these riskier asset values can contribute to higher loss rates.

Other Studies: Bennett and Unal (2010) also find that higher brokered deposits are associated with higher net losses on assets, even after controlling for resolution type and loan performance. Schaeck (2008) analyzes banks insured under the Bank Insurance Fund from 1984-2003, grouping them by loss rates.⁹⁷ After taking into account the effects of loan performance and loan concentration, he finds that brokered deposits become more statistically significant as loss rates increase.

Other studies find mixed effects for brokered deposits on loss given default. For example, Osterberg and Thomson (1995), run statistical tests that sometimes indicated that brokered deposits should be included as a possible factor in determining resolution costs, but in other instances that brokered deposits were unlikely to have much explanatory power. When they did test whether brokered deposits affected resolution costs at commercial banks closed between 1986 and 1992, they found that brokered

⁹⁷ Klaus Schaeck, "Bank liability structure, FDIC loss, and time to failure: A quantile regression approach," *Journal of Financial Services Research*, vol. 33 (January 2008): 163-179.

deposits actually lowered resolution costs, but the economic significance of their results is unclear.⁹⁸ The authors suggest the reason for these lower resolution costs could be market discipline or more prompt closure. Benston (1986) finds a positive relationship between brokered deposit levels and FSLIC losses, but a negative relationship between the change in brokered deposits over the year before failure and FSLIC losses (for large institutions only). As previously mentioned, however, Benston's (1986) findings only reflect the experience of savings and loan associations from 1981-1985, and data from this period may be misleading due to delays in the FSLIC resolution process. Flannery (2011) analyzes failures between 2008 and 2010 and does not find any statistically significant evidence that brokered deposits affect estimated resolution costs.

Conclusion: The FDIC studies look at both the more recent crisis and the crisis of the late 1980s and early 1990s, and these studies use loss data that is updated each month as actual losses are realized by the FDIC and as estimates of loss are updated. Other studies that find brokered deposits increase losses at failed banks also use more accurate data. For example, Bennett and Unal (2010) measure costs in terms of realized losses. Schaeck (2008) uses data from the FDIC's Failed Bank Cost Analysis, with more accurate data than that used by Osterberg and Thomson (1995), since the analysis takes place later and more recent realized cost data is available. In sum, the most comprehensive studies, using the most up-to-date data, find that brokered deposits are correlated with increased losses for the FDIC in the event of failure.

Reciprocal deposits

Data Limitations: The FDIC began collecting data on reciprocal deposits in the second quarter of 2009, well after a severe real estate downturn and banking crisis had already begun. The data available to us about reciprocal deposits thus do not include the pre-crisis period where the bank behaviors associated with the most significant policy concerns about brokered deposit usage would have been most likely to have been observed. In particular, the period of time in which banks were rapidly growing their C&D and CRE portfolios was largely over by the time by the FDIC began collecting data on reciprocals.

These data limitations mean that our findings about reciprocal deposits have to be qualified extensively. First, any banks using reciprocals deposits that failed prior to June 30, 2009 would not be included in the analysis. It is possible that the use of reciprocal deposits might have facilitated growth and acquisition of higher risk assets before June 2009 in a way that is not visible to us because of our limited data. To the extent that some banks using reciprocals were removed from their networks for violating financial condition restrictions imposed by some networks, those banks might not have been included. The special circumstances that apply to this limited period of data may also affect results, as the U.S. was in the midst of a banking crisis, banks were subject to heightened supervision, and many failed banks participated in loss sharing. In addition,

⁹⁸ The paper does not identify units of measure for coefficients, making the economic significance of coefficients unclear.

since data is only available for a small window of time, it may be possible that poorly underwritten loans have not yet seasoned or reached nonperforming status.

Findings: Given the data limitations, the FDIC analyzed the effects of reciprocal deposits on failure probability over a two-year horizon and, in the quarter before failure, on a bank's loss given default. As stated above, the small sample size precludes drawing strong overall conclusions from this data, but the analysis finds no statistically significant correlation between reciprocal deposits and failure probability or loss given default.⁹⁹ (See Appendix B.) However, the findings from this limited data do not rule out the possibility that banks may, in the future, use reciprocal deposits as a substitute for core deposit funding or equity, thus heightening their risk of failure and the loss to the FDIC in the event of failure. The FDIC does find that reciprocal deposits increase the likelihood of a poorer CAMELS rating within one year based on analysis using June 2009 and June 2010 Call Report and TFR data. For example, they lower the probability of a bank receiving a CAMELS rating of 2 in the upcoming year and increase the probability of a 4 rating. The extent to which the use of reciprocals before mid-2009 facilitated risk-increasing behaviors by these banks is unknown (although as noted below, one study does find reciprocals use to be correlated with a variety of other risk indicators).

Other Studies: Blinder and Shastri (2011) use proprietary data to examine the effect of reciprocal deposits on probability of failure using both quantile analysis and multivariate regressions. In the quantile analysis, the authors show that groups of banks with higher volumes of reciprocal deposits as a share of total deposits tend to have lower average quarterly failure rates than those with lower volumes or no reciprocal deposits. They also run multivariate regressions for each quarter and for all failures during the entire period to test the statistical significance of reciprocal deposits on an institution's probability of failure. Their results show that for the entire dataset of failures from the third quarter of 2008 through the third quarter of 2010, reciprocal deposits only have a marginally significant effect on reducing the probability of failure within one quarter. For individual quarters, the results are more mixed: reciprocal deposits only reduce the probability of failure to a statistically significant degree in one quarter, and they do not have a statistically significant effect in the remaining quarters. In any event, this study looked at reciprocal deposits only one quarter in advance of failure, which limits the conclusions that can be drawn.

For banks in June and September 2009, Shaffer (2010) studies the effect of reciprocal deposits on financial ratios that are linked with higher risk.¹⁰⁰ He finds that

⁹⁹ Regression analysis produced anomalous results during the period. For example, in some regressions core deposits increased the probability of default and were not correlated with lower losses to the FDIC in the event of failure. The value of core deposits may have been depressed by the unusually intensive FDIC resolution activities with an unusually large number of banking franchises available, heavy reliance on loss sharing agreements, near zero interest rates, and a weak extended outlook for lending growth. These features of this sample period are not indicative of longer term trends and so the lack of correlation between reciprocal deposits and higher loss at failure could be a sample-period-specific finding.

¹⁰⁰ Sherrill Shaffer, "Reciprocal Brokered Deposits and Bank Risk," (working paper no. 15/2010, Australian National University, Centre for Applied Macroeconomic Analysis, June 2010).

greater use of reciprocal deposits is associated with higher loan loss rates, average costs, ratios of total loans to assets and commercial loans to assets, and relative levels of insider loans, all of which indicate higher risk. In addition, Shaffer finds that reciprocal deposits increase banks' overall cost of funding and reduce profitability.

Flannery (2011) analyzes the effect of reciprocal deposits on probability of default and resolution costs for failures between 2008 and 2010 using data provided by Promontory Interfinancial Network, LLC and the FDIC. He finds that reciprocal deposits do not have a statistically significant effect on probability of default over a one-, two-, or three-year horizon. He also finds that reciprocal deposits lower resolution costs over a one-year horizon only.

Conclusion: The FDIC's studies on brokered deposits reveal that they are correlated with lower core deposit ratios, higher growth and nonperforming loans and higher losses upon failure. The analysis of brokered deposits reveals that the problems associated with brokered deposits can take years to materialize (loans, for example, usually take several years to default) and they tend to materialize during bank crises. Because the data on reciprocal deposits is so limited and covers only a crisis period and not the period leading up to a crisis, it is inappropriate to place much confidence in statistical analysis that tests whether reciprocal deposits are an exception to the general finding that brokered deposits are correlated with higher risk. Such a small sample of data, taken from a period of banking crisis and enhanced supervision, is not indicative of a more complete sample of banks using reciprocal deposits.

VII. Conclusions regarding Core and Brokered Deposits

A. Core Deposits

As discussed in the preceding section, statistical studies, including the FDIC's, have found that, with a high degree of statistical confidence, increasing levels of core deposits are associated with a lower probability of bank failure and lower losses to the FDIC in the event of failure.

While some commenters urged the FDIC to abandon the concept of a core deposit or to treat certain types of brokered deposits as core (for example, reciprocal deposits and sweeps and referrals from affiliates), statistical studies support the FDIC's view of the concept's continuing usefulness as currently defined. Although some types of brokered deposits have some of the characteristics of core deposits, as commenters have argued, there is no conclusive statistical evidence that any type of brokered deposit should be treated as core.

One commenter suggested that institutions be allowed to use their own methodology in place of the current definitions of core and brokered deposits, which would be reviewed by examiners. The institution would provide the results of its internal volatility measurements on the Call Report. This argument also has some merit, but could result in inconsistent treatment of different banks. A few commenters suggested that the FDIC collect additional or different data from institutions to determine which

deposits are core and which are noncore. For example, one commenter suggested collecting data on CDs' early withdrawal terms, the distribution of original and remaining maturity for CDs, renewal behavior analysis for CDs, data on the duration of existing customers' deposits, vintage analysis for non-maturity deposits, analysis of the number and amount of deposits held by each customer, a description of the bank's pricing policy, and customer satisfaction results. Again, this suggestion merits future study, but could not be accomplished without significant additional reporting requirements, which would take time to implement and could not be used to inform this study.

B. Brokered Deposits

Brokered deposits are correlated with behaviors that increase the risk of failure. On average, banks that use brokered deposits typically use lower shares of core deposit funds than banks that do not, and, as a result, they face a higher probability of default. The FDIC's statistical analyses also show that brokered deposits are an indicator of higher risk appetite. Banks that use brokered deposits have higher growth and higher subsequent nonperforming loan ratios, which are both associated with a higher probability of failure.

In addition, brokered deposits tend to increase the FDIC's losses when a bank fails. A traditional brokered deposit that remains at a bank when it fails has no franchise value. Bidders have repeatedly told the FDIC that they are not interested in paying for brokered deposits and the FDIC, as a result, does not even seek bids for brokered deposits when a bank fails.¹⁰¹ At the roundtable discussion, a consultant who advises banks that bid for failed banks or their assets noted that brokered deposits are the least attractive kind of deposit to prospective purchasers. Consequently, the FDIC rejects the view of the small number of commenters who argued that the main reason brokered deposits do not have any franchise value is that regulatory pressure causes a stigma to be placed on these types of deposits.

Again, while some commenters urged the FDIC to abandon the concept of a brokered deposit, statistical studies and the FDIC's own analysis have convinced the FDIC that the concept of a brokered deposit, as defined by the statute, remains useful in evaluating and predicting bank performance and remains relevant to determining the FDIC's losses in the event that a bank fails.

Some commenters wrote that brokered deposits should be viewed in the context of more general funding sources, emphasizing that all banks should seek to diversify their funding. For example, some commenters suggested using a ratio that measures wholesale liabilities in general (not just brokered deposits) as a percentage of total assets. While the FDIC believes that all bank liabilities, including deposit liabilities, must ultimately be evaluated in the context of a bank's overall risk-management strategy, asset and liability

¹⁰¹ When a bank fails, deposit contracts terminate as a matter of law. If brokered deposits were passed to an acquirer, deposit brokers, in whose name brokered deposits are held, would simply withdraw traditional brokered deposits and place the deposits elsewhere. As a result FDIC does not offer these types of deposits in resolution transactions and pays the brokers directly.

structure, and whether a bank is overly dependent on a single source of funding, sources of funds other than deposits are outside the scope of this study.

VIII. Analysis and Conclusions regarding Particular Kinds of Deposits

Of course, a statistical analysis that considers brokered deposits as a whole cannot reveal possible differences among types of brokered deposits. Unfortunately, data on different types of brokered deposits is either insufficient or lacking.

Reported data on reciprocal brokered deposits, for example, is greater than for any other category of brokered deposits, but it is not extensive. For other kinds of brokered deposits—sweeps and referrals from affiliates, for example—data is either incomplete or nonexistent. This statement holds true of other kinds of deposits as well, such as high rate deposits.

Despite the lack of data, it is possible to use the characteristics of different kinds of deposits with analogies to the statistical results that do exist to analyze the extent to which a particular kind of deposit is likely to facilitate growth, cause liquidity problems by leaving a bank, especially when it is under stress, or reduce franchise value.

This section undertakes such an analysis of five kinds of deposits that commenters have focused on. These deposits are reciprocals, sweeps, referrals from affiliates (and some agents), listing services that are not brokered and high rate deposits. The analysis of high rate deposits includes all high rate deposits, even those that would otherwise fall into another category of deposits. *Of course, in general, the conclusions that can be drawn from this analysis are less certain than those that can be drawn from rigorous statistical analysis.*

A. Problems That Deposits Can Present

Deposits can present several different kinds of problems for bank safety and soundness and for the FDIC. In the process of completing this study, the FDIC focused on the three most important potential problems that a deposit may pose.

First, if a bank can acquire deposits too easily, it may have more funds than it can prudently invest. Similarly, if a bank pays more for its deposits than it earns on its loans, it will eventually become insolvent and fail.

Second, the more likely a depositor is to leave a bank, for higher rates or when the bank is under stress, the greater the risk that the bank may encounter liquidity problems.

Third, if a bank does fail, some kinds of deposits are more attractive to potential purchasers of the failed bank than others. Deposits that are attractive to purchasers create franchise value, while those that are not reduce it. Characteristics that may make deposits more attractive are a low relative cost, a continuing customer relationship, and the potential for the funds to remain stable and not leave the bank after acquisition. The greater a failed bank's franchise value, the lower the losses that the DIF will incur, all else equal. In this regard, banks differ greatly from other types of businesses, whose

value is created solely or primarily by asset values; for banks, some deposit liabilities also create value.

B. Deposit Characteristics

The degree to which a deposit can present these problems depends on the characteristics of the deposit. Commenters have emphasized the importance of deposit characteristics in evaluating their value, volatility, and stability. The FDIC has identified five characteristics that are most useful in evaluating deposits:

1. *Interest rates* relative to those offered by the rest of the industry;
2. Whether deposits can be *gathered quickly in large quantities*;
3. The *relationship* between the depositor and the bank (or a bank's affiliate);
4. Whether a deposit is *insured or not*; and
5. Remaining *time to maturity*.

Interest rates

Deposit accounts that pay high interest rates are likely to exhibit all three of the problems identified. In order to pay high rates, a bank must invest in assets with even higher returns (if it is to earn a profit); generally speaking, the higher the potential return, the greater the risk. The interest rates a bank pays on its deposits can also have a significant effect on the stability or volatility of its deposit base. Paying high rates may attract "hot money" that may quickly leave the bank if the bank reduces its deposit rates. Additionally, in a failure scenario, high deposit rates are not attractive to potential purchasers and do not add to a bank's franchise value, resulting in higher losses to the DIF and, in the long run, higher premiums for surviving institutions.¹⁰²

A commenter suggested focusing on low rate deposits rather than high rate ones. In the view of the commenter, core deposits should be defined by a metric that indicates what percentage of a bank's revenue comes from a below-market cost of funding and fees on deposits. The commenter argued that the larger the revenue, the less risky the deposit.

¹⁰² Defining a "high rate," however, is not simple and is hampered by a lack of data, since the Call Report does not collect detailed information on interest rates. While this study does not attempt to define a "high rate," the FDIC has analyzed the limited proprietary data it has on interest rates. The FDIC's analysis of this data supports the current regulatory definition. In general, under the FDIC's regulations, any insured depository institution that is not well capitalized may offer no more than the "national rate" plus 75 basis points for deposits of similar size and maturity. 12 C.F.R. § 337.6(b). The "national rate" is a simple average of rates paid by all insured depository institutions and branches. On a weekly basis, the FDIC publishes the rate caps on its website. If an insured depository institution believes that the "national rate" does not correspond to the actual rates in the institution's particular market, the institution is permitted to offer evidence of the actual market rates. However, more analysis of this issue is required and the FDIC is exploring the possibility of gathering additional data with which to conduct a statistical analysis to determine the best definition of a high rate deposit.

This is a sensible suggestion, but, in the FDIC’s view, focusing on the riskier source of funds serves the same purpose and is consistent with past practice.

Deposits that can be gathered quickly in large quantities

Deposits that can be gathered quickly in large quantities present at least one of the potential problems by allowing an institution to grow very quickly and invest in risky assets. While many commenters urged the FDIC to ignore the mechanism by which deposits are obtained, a fundamental distinction remains between deposits that are acquired singly (often based upon a customer relationship) and those that are acquired in bulk or in large quantities, since bulk deposits can allow an institution to grow quickly. Many forms of brokered deposits can be acquired quickly and in bulk. Under some circumstances (usually by offering high rates) deposits obtained via the Internet can also be acquired quickly and in large quantities. In addition, these types of deposits may also present a liquidity problem: a deposit that can be gathered quickly in large quantities may, in some cases, leave the bank quickly in large quantities. Deposits that are acquired quickly are often high rate or non-relationship deposits, which lack franchise value.

Customer relationship

Deposits that are not based upon a customer relationship are likely to present all three problems.¹⁰³ Deposits are generally easier to acquire if the time-consuming process of building a relationship can be avoided. Deposits that are not based upon a customer relationship can be withdrawn easily and quickly. Many commenters agreed, arguing that depositors that have multiple connections with the institution or have been a customer of the institution for an extended period of time represent more stable deposits than those that do not have a relationship. In addition, because deposits that are not based upon a relationship appear likely to leave a bank when it is under stress, they are not

¹⁰³ Defining a “relationship,” however, is also not simple and this study does not attempt to define it. However, as used in the study, the word “relationship” implies considerably more than that a person or business is simply a customer of a bank. At a minimum, it requires that a customer has:

- A single deposit of some kind but also has a loan or uses other services of the bank or a bank affiliate (e.g., wealth management, broker-dealer services); or
- An active transaction account deposit and either: (1) uses direct deposit or automatic bill pay; (2) uses the account for payroll; or (3) has another deposit.

One of the complexities of this issue is the exact definition of a bank affiliate. For example, should the definition of an affiliate apply only to an affiliate where both the bank and the affiliate are wholly owned or will lesser ownership suffice?

Many commenters argued that the definition of a relationship deposit could also depend on the length, as well as the depth, of the customer’s relationship with the bank. Some commenters defined relationship deposits in terms of how “sticky” the customer relationship is, indicating that these types of deposits are unlikely to quickly and easily leave the bank. The definition also could differ among various types of institutions. For example, the definition of a “relationship” deposit at a small rural community bank may differ significantly from the definition used by a large financial institution, a bank that gathers its deposits primarily through the Internet, or an institution that gathers its deposits through referrals from affiliates.

In the FDIC’s view, additional analysis is needed to determine the proper definition of a relationship.

likely to have franchise value in the event the bank fails. Conversely, deposits that are based upon a customer relationship are likely to contribute to franchise value because they are more stable and they allow the bank to acquire long-standing relationships.

To a certain extent, when a bank receives deposits because of a customer's relationship with an affiliate, that relationship may substitute for a relationship with the bank itself. However, this relationship is inherently more tenuous than a direct relationship between the bank and the customer, since it depends upon the continued success and business strategy of the affiliate, the customer's relationship with the affiliate, and the affiliate's willingness to continue to refer deposits to the bank.

Deposit insurance

Uninsured deposits present at least one of the potential problems. Uninsured deposits can exacerbate liquidity problems at a weakened bank. When a bank experiences financial deterioration, customers who hold deposits in excess of the deposit insurance coverage limit are likely to remove those deposits. Uninsured balances at failed banks are usually either low or non-existent, unless the bank fails due to fraud or unexpected liquidity problems. Multiple commenters noted that insured deposit balances at weak banks have remained stable, while the deposits that are most likely to leave are uninsured deposits. This apparent runoff may be due in part to the financial sophistication of those placing their money in uninsured deposits. A depositor who chooses an uninsured over an insured deposit is more likely to monitor an institution's condition and thus remove those deposits when the institution experiences financial deterioration.

Remaining time to maturity

The duration of a deposit can present or mitigate the problem of a deposit leaving a bank for higher rates or when the bank is under stress. The longer a deposit's remaining time to maturity and the stricter the restrictions on early withdrawal, the less likely it is to be withdrawn when an institution is under stress. Conversely, with one exception, the shorter a deposit's remaining time to maturity and the looser the restrictions on early withdrawal, the more likely it is to be withdrawn when an institution is under stress or to leave for higher rates. The exception is demand deposits, which, as the studies discussed above show, have an average duration of six months to seven years, depending on the type of deposit. For these non-maturity deposit accounts, the expected life of the deposit or its duration may depend on features of the account that make it less likely the customer will withdraw funds. For example, a NOW account customer that has direct deposit and uses electronic bill pay, all other factors being equal, may have a longer duration than one that does not.

Several industry commenters suggested that the term as well as the duration of a deposit has a direct effect on stability and volatility. For example, a brokered CD with a seven-year maturity can only be withdrawn under very limited circumstances. Other types of time deposits may have contractual restrictions or impose penalties for early withdrawal. However, a deposit's term at origination is not necessarily the same as its

effective maturity. For example, the duration of a CD may be significantly shortened by a lack of or low prepayment penalty, especially in a rising rate environment. Moreover, it is the remaining time to maturity, not the term at origination, that determines how quickly a deposit may be withdrawn.

Commenters’ suggestions

Several commenters suggested the use of other characteristics in evaluating deposits. For example, some commenters thought that whether deposits were obtained via the Internet or outside of a bank’s normal deposit taking area were important. In the FDIC’s view, however, these two characteristics are primarily proxies for whether a customer relationship exists, which is a characteristic that this analysis relies on directly. Other commenters agreed, citing local deposits that turned out to be “hot money” as technology enabled depositors to leave the institution for better rates or terms.

One commenter suggested that the general principle in defining core deposits should be whether the deposits come from small, financially unsophisticated entities, including less wealthy individuals, small businesses, and small non-profit organizations. These depositors, the commenter argued, lack the ability to impose informed market discipline on banks. This argument has merit, but the FDIC is concerned that it introduces unnecessary complexity in this analysis. In addition, in practice, the burden of determining the nature of every depositor could outweigh the analytical benefit.

Summary of deposit characteristics that can contribute to potential problems

Deposit Characteristics Can Contribute to Potential Problems

Characteristic	Potential Problem		
	Rapid, risky growth	Deposit Volatility	Lower Franchise Value
High interest rates	X	X	X
No relationship	X	X	X
Easy to obtain in large quantities	X	X	X
Uninsured		X	X
Short term to maturity		X	

The following sections use these characteristics to analyze certain types of deposits mentioned frequently in comment letters to determine whether they pose any of the three problems discussed above (rapid growth, volatility and franchise value). The analysis that follows (other than the analysis of high rate deposits) assumes that the deposits are not high rate. All high rate deposits are evaluated as a group.

C. Reciprocal Brokered Deposits

Rapid Growth: Banks can use reciprocal deposits either passively, as an accommodation to an existing customer, or actively, by marketing the opportunity for customers to access virtually unlimited deposit insurance. Using the customer accommodation strategy, a bank receives a deposit in excess of the insurance limit from a customer and uses a network to place the uninsured portion with other banks and receive equal amounts of insured deposits in return. It is unlikely that banks using reciprocals primarily as a customer accommodation strategy would grow quickly using customers that have a relationship with the bank (as the term “relationship” is used in this study), since it generally takes time to develop a relationship with a customer and relationship customers cannot be obtained in bulk.

On the other hand, when a bank has no customer relationship—for instance, if it advertises on the Internet to acquire new reciprocal deposits without establishing a relationship—the bank should be able use reciprocal deposits to grow quickly. In fact, some banks have advertised the ability to accept deposits of \$50 million or more using reciprocal deposit programs. One commenter noted that it uses reciprocal deposits to quickly obtain large deposits.

Volatility: Because reciprocal deposits are brokered deposits, the brokered deposit statute itself restricts or eliminates the ability of a less-than-well-capitalized bank to renew or roll over existing reciprocal deposits. The reciprocal deposit placement network may also impose similar restrictions. These considerations aside, it would appear, as many commenters noted, that a reciprocal deposit where the depositor has a relationship with the bank is less likely to leave a bank for higher rates or when the bank is under stress than is a reciprocal deposit where there is no relationship, since, in general, relationship deposits appear to be less likely to seek high rates and more likely to remain at a stressed bank than non-relationship deposits. (Reciprocal deposits are almost all insured, since they exist to increase a depositor’s insurance coverage.) However, to the extent that reciprocal deposits depend upon the existence of a network, they are also vulnerable to the financial health of the network. If the network were to fail or exclude a bank, a bank could experience liquidity problems.

Franchise Value: Too little data exists to conclusively determine statistically whether reciprocal deposits are an exception to the general rule that brokered deposits increase DIF losses. At the roundtable discussion, however, a consultant who advises banks that bid for failed banks or their assets noted that reciprocal deposits are viewed favorably by prospective purchasers. He added that banks acquiring reciprocal deposits often value the customer relationships that accompany these deposits enough to keep the same interest rates specified in their original contracts.¹⁰⁴

In all, reciprocal deposits based upon a customer relationship may pose somewhat fewer problems (or present them to a lesser extent) compared to brokered deposits in general. When based on a customer relationship, these deposits would not appear to

¹⁰⁴ As discussed above, when a bank fails, deposit contracts terminate as a matter of law.

foster growth and may not increase the FDIC's losses when a bank fails (although the data is inconclusive on this point). However, as noted above, they are potentially volatile because of their dependence on the continued existence of the placing network and its willingness to allow a bank to continue to participate.

While the brokered deposit statute does not distinguish between these and other brokered deposits, supervisors and the assessment system do. The FDIC has recognized for some time in the examination process that reciprocal deposits may be more stable than other brokered deposits if the originating institution has developed a relationship with the depositor and the interest rate is not above market. When a bank becomes less than well capitalized, examiners consider the effect of reciprocal deposits on the bank's liquidity position as the deposits mature and roll off to determine whether the bank has sufficient funds to absorb the roll off. The assessment system excludes all reciprocal deposits from the adjusted brokered deposit ratio that applies to well-capitalized, well-managed small banks, and from the brokered deposit adjustment when applied to well-capitalized, well-managed large banks.¹⁰⁵

Several commenters argued that reciprocal deposits should be considered core deposits and should not be considered brokered, since, in the commenters' opinions, they are insured, low-cost, stable deposits based on relationships with local customers, and have high retention rates. While the FDIC agrees that reciprocal deposits do not present all of the problems that traditional brokered deposits present, they pose sufficient potential problems—particularly their dependence on a network and the network's continued willingness to allow a bank to participate, and the potential of supporting rapid growth if not based upon a relationship—that they should not be considered core and should continue to come under the purview of the statute. A few commenters supported this view on the grounds that classifying reciprocals as core would only benefit a few individual companies and not the banking industry in general.

D. Sweep Deposits

Affiliated sweeps

Rapid Growth: Despite the paucity of data, there is some reason to believe that deposit sweeps from affiliated broker-dealers do not lead to rapid growth in the long run. Banks that accept sweep deposits from an already established broker-dealer affiliate tend to grow fast initially. Thereafter, however, at least at the banks for which the FDIC has received information, growth using these deposits has leveled off after the initial growth spurt, apparently constrained by the amount of funds that a customer keeps uninvested and is willing to have placed in the bank. However, changes in an affiliate's marketing strategies or market conditions could lead to rapid growth in sweep deposits. Commenters argued that sweeps from broker-dealers are not used to fund high-risk

¹⁰⁵ While distinguishing between reciprocal deposits that are based on a relationship and those that are not could be useful, it would be time consuming and burdensome for banks to acquire and report the necessary data.

assets, which appears to have been the usual case until now, but has not been true in every case.

Volatility: There is also some reason to believe that deposit sweeps from affiliated broker-dealers do not tend to leave for high rates or during periods of stress. Several commenters argued that this stability is true for sweep deposits in general (including sweeps from non-affiliates), and therefore sweeps should not be considered brokered deposits. As several commenters also noted, rates paid on sweep deposits (including sweeps from non-affiliates) are very low and the deposits are not interest rate responsive.

Several banks that accept affiliated broker-dealer sweeps have shown the FDIC analyses suggesting that deposits did not decline significantly during the recent financial crisis and commenters have argued that sweep deposits in general are immune to changes in the equity market and economic conditions. However, there was a general flight to safety during the recent financial crisis and a withdrawal from the stock market. The permanence of these deposits is more likely to be tested when other investment opportunities are plentiful, which has not been the case in recent years. In addition, some banks accept uninsured amounts from affiliated broker-dealers. Accepting these deposits could lead to deposit volatility. Of course, to the extent that sweep deposits are classified as brokered, when a bank becomes less than well capitalized, the brokered deposit statute could lead to restrictions on these deposits.

Franchise Value: There is no data on the franchise value of these deposits, but the value is likely to depend on whether an acquirer also acquires the affiliated broker-dealer business. If so, the deposits are likely to have franchise value; if not, they are likely to have none. The value and behavior of these deposits has not been tested to any extent in actual bank or affiliate failures.

The FDIC recognizes in the examination process that sweep deposits from affiliates can be a stable source of funding for financially sound institutions offering a market rate. Examiners evaluate affiliate sweep deposits in the context of the total dollar volume and the overall financial condition of the institution receiving the funds. As discussed earlier, banks with an affiliate sweep program can seek a “primary purpose exception” under which a limited percentage of sweep deposits will not be considered brokered.

In all, sweep deposits from affiliates appear to pose fewer problems compared to brokered deposits in general. These deposits would not appear to foster growth other than during an initial growth period, are not rate responsive (although they may be responsive to other investment opportunities) and may not leave when a bank is under stress. They may or may not have franchise value, depending upon the circumstances of the failure of the bank and affiliated broker-dealer. The FDIC has recognized that some of these deposits are not brokered (those that fall within the purview of the primary purpose exception discussed in Section IV(C)), and those excepted deposits are not treated as brokered by either supervisors or the assessment system. While other sweeps from affiliates do not present all of the problems that traditional brokered deposits present, they pose sufficient potential problems—particularly due to their volume,

dependence on the business success and strategy of an affiliate, the affiliate's control over the deposits, and whether the deposits will leave banks once investment opportunities improve—that they should continue to come under the purview of the statute.

Non-affiliated sweeps

Rapid Growth: In contrast, despite the paucity of data, there is some reason to believe that deposit sweeps from *non*-affiliated broker-dealers may lead to growth, since the possibility exists that a bank might acquire these deposits from more than one broker-dealer and can, by contractual arrangement, quickly increase the amount acquired from a single broker-dealer.

Volatility: As noted earlier, several commenters argued that all sweep deposits are stable, that rates paid on sweep deposits are very low and that the deposits are not interest rate responsive, but there is reason to believe that sweep deposits from non-affiliates may also be less stable than core deposits. In some waterfall arrangements, banks, particularly those at the end of the waterfall, may not receive consistent amounts of sweep deposits. Some commenters have argued that, for those banks near the top of the waterfall that have contractual rights to receive sweeps, these deposits, in aggregate, are stable. However, these contracts have limited terms. If the contract is not renewed, these banks could experience liquidity problems.

Franchise Value: While, again, there is no data on the franchise value of these deposits, they are likely to have none in the event of failure, since the sweep arrangement is almost certain to terminate.

As with reciprocal deposits, several commenters argued that sweep deposits, including sweeps from non-affiliates, should be considered core deposits and should not be considered brokered, since, in the commenters' opinions, they are insured, low-cost, stable deposits based on relationship and have high retention rates. While the FDIC agrees that sweep deposits from affiliates do not present all of the problems that traditional brokered deposits present, sweep deposits from non-affiliates pose all three of the potential problems that a deposit may pose and also depend on a single source. Consequently, sweep deposits from non-affiliates should not be considered core, and, in general, should continue to come under the purview of the statute.

E. Referrals from Affiliates

Rapid Growth: As discussed earlier, some banks obtain deposits through referrals from affiliates that are engaged in other lines of business (insurance, for example) or through call centers or general business centers that handle business for the bank using affiliate employees or call center contractors. These referrals are ancillary to the affiliates' legitimate businesses and are usually based upon a relationship between the customer and the affiliate. Under these circumstances, it is unlikely that a bank could use these deposits to grow quickly. However, there is virtually no data on these deposits.

Volatility: Because depositors have a relationship with an affiliate of the bank, these deposits may behave more like deposits where the bank itself has a relationship

with the depositor, and thus may be more stable and less likely to leave for higher rates or when the bank is under stress. Some commenters took this position, arguing that these deposits are stable and low cost.

Examiners evaluate the stability of deposits referred from an affiliate similarly to other deposits. The depositor's relationship with the bank, as well as rate, insurance coverage, depositor location, length of time at the bank, time to maturity, and whether deposits can be gathered quickly are all considered when assessing deposits referred from an affiliate. In addition, the depositor's relationship with the affiliate may or may not increase the likelihood the depositor will continue to maintain the deposit with the bank. In cases where an institution relies on affiliate or referral deposits, examiners observe the stability or volatility of these deposits over time and the nature of the referral process and affiliate relationship with the institution.

Franchise Value: Because the bank obtains these deposits only because of the depositor's relationship with the bank's affiliate, similar to sweeps from affiliated broker-dealers, the deposits may or may not have franchise value, given that it is difficult to account for the range of circumstances affecting the bank and its affiliate. The value and behavior of these deposits has not been tested to any extent in actual bank or affiliate failures.

In all, referrals from affiliates and their agents also appear to pose fewer of the problems that a deposit can pose compared to brokered deposits in general.¹⁰⁶ These deposits would not appear to foster growth and appear to be relatively stable. Whether they have franchise value depends on particular circumstances. While these deposits do not present all of the problems that traditional brokered deposits present, they still pose greater potential problems than many other non-brokered deposits—particularly their dependence on the success and strategies of an affiliate and the bank's continued relationship with the affiliate—should not be considered core, and should continue to come under the purview of the statute.

F. Passive (Non-Brokered) Listing Service Deposits

Banks recently began reporting listing service deposits on the Call Report, but, at present, there is insufficient data on these deposits to undertake a statistical analysis. In the future, once sufficient data has been gathered, the FDIC intends to undertake such an analysis.

Rapid Growth: In the absence of such an analysis, however, it appears that these deposits could facilitate more rapid growth and increase the chance of excessive risk taking compared to other non-brokered deposits. Listing services operate by allowing prospective depositors, often looking to place large sums, to choose banks that offer higher interest rates. Thus, deposits can be acquired in bulk and in large volume simply

¹⁰⁶ As discussed in an earlier footnote, in some circumstances, referrals from affiliates may include referrals from agents of the bank or affiliate; however, these circumstances would have to be strictly limited to avoid including ordinary brokered deposits.

by increasing interest rates; as a result, these deposits may be even more responsive to interest rates than are brokered deposits. Several MLRs cited listing service deposits as a source of loan growth at several failed banks, in some cases leading to risky concentrations or liquidity problems.

Volatility: Because these deposits are ordinarily attracted by interest rates and are not based upon existing relationships, these deposits would appear likely to leave for higher rates or when a bank is under stress, as some commenters argued. However, other commenters claimed the opposite.

Some weak banks have used listing service deposits to fund liquidity shortfalls caused by their inability to roll over maturing brokered deposits due to regulatory restrictions. In the examination process, the FDIC views listing service deposits as potentially more volatile than traditional, locally generated deposits.

Franchise Value: While there is no data on the franchise value of these deposits, they are likely to have little in the event of failure, since they are not based upon a customer relationship and will usually be from outside the failed bank's normal deposit-taking area. At the roundtable discussion, a consultant who advises banks that bid for failed banks or their assets noted that out-of-area deposits and Internet deposits are among the least attractive deposits to acquirers (brokered deposits being the least attractive).

In general, listing service deposits can pose all of the problems that a deposit can pose. While the FDIC has the authority under the brokered deposit statute to impose greater restrictions on listing service deposits, the FDIC is inclined to wait until sufficient data on these deposits accumulate to allow statistical conclusions.

G. All High Rate Deposits

Rapid Growth: Any kind of high rate deposit would appear, by its nature, more likely to facilitate growth and increase the chance that a bank will take on excessive risk. High rate deposits can include those obtained easily and en masse via the Internet, as well as high rate deposits obtained through more traditional means such as at a local branch. The attractiveness of high rates to a depositor is obvious; all else equal, particularly when a deposit is insured, a depositor should choose a higher rate over a lower rate. Even when a deposit is uninsured, a sufficiently high rate should allow a bank to attract large volumes of deposits.

Moreover, all else equal, to net the same amount a bank must earn more on its assets for a high rate deposit than for a low rate deposit. Thus, by its nature, a high rate deposit would appear more likely to lead a bank to take greater risk.

Volatility: A depositor who places a deposit with a bank because the bank is paying a high rate would also appear to be more likely than other depositors to take the deposit elsewhere if the bank's rates do not remain high. A depositor is also likely to go elsewhere in the absence of an established relationship with the bank or in the absence of a contract or withdrawal restrictions. A bank that is under stress cannot usually afford to

continue to pay high rates; if it becomes less than well capitalized, it is subject to statutory and regulatory interest rate caps.

Various commenters identified interest rates, above market rates and responsiveness to interest rate as some of the most important characteristics that the FDIC should consider in classifying deposits and determining their stability.

Franchise Value: In the FDIC's experience selling failed banks, high interest rate deposits are not attractive to prospective purchasers. When an acquirer obtains high interest rate deposits from a failed bank, the deposits tend to leave quickly when the acquirer lowers interest rates.

The FDIC already considers interest rates (including a comparison with competitors' rates) and an institution's deposit pricing strategies during bank examinations. In assigning the Liquidity ("L") portion of a CAMELS rating, examiners evaluate the overall exposure to high rate deposits. Significant exposure, particularly if the institution's financial condition is deteriorating, may adversely affect the examiner's overall assessment.

In all, high rate deposits appear to pose all three of the major problems that a deposit can pose. While the brokered deposit statute imposes rate restrictions on less-than-well-capitalized banks, it imposes no restrictions on well-capitalized ones. Supervisors take interest rates (as well as duration and other factors) into account when evaluating a bank's asset and liability structure and liquidity, but the deposit insurance system does not.

IX. Recommendations

The FDIC recommends that Congress not amend or repeal the brokered deposit statute. As discussed above, the most comprehensive and up-to-date statistical studies have found that increasing levels of brokered deposits are correlated with a higher probability of failure and higher losses to the FDIC in the event of failure. In addition, increasing levels of brokered deposits are associated with lower core deposit ratios, more rapid growth, and riskier underwriting standards, each of which is correlated with a higher probability of failure.

In the FDIC's view, the brokered deposit statute has served a useful purpose during the most recent crisis. In large measure, it has prevented failing banks from increasing their brokered deposits, thus preventing them from trying to grow out of trouble by taking on greater risk and limiting FDIC losses at failure. For example, prior studies on banks that failed between 1984 and 2003 found that bank failures that occurred after the enactment of statutory restrictions were more likely to have lower resolution costs than failures that occurred before after the statutory restrictions were established.¹⁰⁷

¹⁰⁷ See, e.g., Rosalind L. Bennett and Haluk Unal, "The Cost Effectiveness of the Private-Sector Reorganization of Failed Banks," (working paper, no. 2009-11, Federal Deposit Insurance Corporation,

The brokered deposit statute is also an important component of prompt corrective action, requiring banks to take measures to confront problems earlier. While banks have many incentives to remain well capitalized, including lower deposit insurance assessments, for banks that rely on brokered deposits, the statute has increased the incentive to remain well capitalized.

Commenters have said that brokered deposits can be a useful, inexpensive source of contingent funding when they need to raise funds for liquidity purposes. Commenters have argued that, by restricting adequately capitalized banks and prohibiting undercapitalized banks from accepting, renewing or rolling over brokered deposits, the statute increases liquidity problems for those banks most in need of liquidity. In place of the current restrictions, commenters suggested that banks should be allowed to reduce brokered deposits gradually once they become undercapitalized. Commenters, however, had differing opinions on how and when, if at all, brokered deposit restrictions should take place. For example, one commenter suggested that regulators should take a more targeted approach and place restrictions on banks with poor asset quality or liquidity management. Another commenter said that banks should only be able to use brokered deposits if they meet certain conditions, including benchmarks for risk-based capital, growth, and loan performance.

However, the FDIC has found the brokered deposit statute to be sufficiently flexible that it can be used without causing liquidity failures.¹⁰⁸ For example, the FDIC can and has granted waivers to allow adequately capitalized banks to accept, renew or roll over reciprocal deposits paying market rates when there was a demonstrable relationship with depositors, and has allowed exceptions to supervisory restrictions on wholesale funding, where appropriate, to allow undercapitalized banks to use non-brokered listing services to solve temporary liquidity problems.

Commenters have also argued that technological change and other innovations have raised issues regarding certain types of deposits that did not exist (or did not exist to any significant extent) when the statute was adopted, such as reciprocal deposits, sweeps, and Internet listing services. Some commenters urged that the FDIC not adopt a “one size fits all” regulation, while others said that a bright line rule would provide clarity and not leave the treatment of brokered deposits to examiners’ discretion. The FDIC recognizes that the banking industry is not uniform, and that individual banks can use brokered deposits in different ways and adopt different business models. For both

January 2011) and Klaus Schaeck, “Bank liability structure, FDIC loss, and time to failure: A quantile regression approach,” *Journal of Financial Services Research*, vol. 33 (January 2008): 163-179.

¹⁰⁸ Of the banks that failed between July 2009 and April 8, 2011, roughly 85 percent used brokered deposits for up to six quarters prior to their failure, but some stopped using this type of funding the quarter before they failed, as only 77 percent of these failed banks reported any brokered deposits in the quarter before they failed. Median failed bank usage of brokered deposits (other than reciprocal deposits) fell from about 10 percent of total assets five quarters prior to failure to 5 percent of total assets one quarter prior to failure. However, among failed banks with the highest use of brokered deposits (other than reciprocal deposits), use of this funding source does not significantly decline as failure approaches, but instead remains at levels ranging from 25 to 30 percent of total assets.

supervisory and deposit insurance assessment purposes, the statute is sufficiently flexible to allow the FDIC to treat these deposits appropriately.

In supervision and in deposit insurance assessments, the FDIC already takes much of the analysis in the previous section into account. The FDIC can and has recognized that certain kinds of deposits should not be treated as brokered, for example, by recognizing the applicability of the primary purpose exception to limited amounts of certain kinds of affiliate sweeps and by recognizing that certain kinds of listing services are not brokered.

The FDIC's examination program views brokered deposits at well-capitalized institutions as being subject to the same considerations and concerns as any other type of funding. Potential concerns relate to volume, growth, availability, cost, volatility, maturities, and how the use of such funding fits into the bank's overall liability and liquidity management plans. The guidance explicitly states that there should be no particular stigma attached to the acceptance of brokered deposits per se and that the proper use of such deposits should not be discouraged. However, given the concerns raised by many commenters, it may be beneficial for the FDIC to issue a financial institution letter (FIL) that consolidates all of the sources of liquidity guidance. Doing so should alleviate any possible confusion about the treatment of deposits for supervisory purposes.

In addition, the FDIC may incorporate the analysis of deposit types in the previous section in future refinements of the assessment system, for example, by possibly including high rate deposits in the brokered deposit adjustment and adjusted brokered deposit ratio and possibly excluding some or all sweeps from affiliates and some or all referrals from affiliates (and agents) from the adjusted brokered deposit ratio.¹⁰⁹ Doing so, however, would require additional (and, in some cases, extensive) reporting and notice-and-comment rulemaking.

These changes would be a further development of the assessment system, where reciprocal deposits are already excluded from the adjusted brokered deposit ratio that applies to all well-capitalized, well-managed small banks, but are included in the brokered deposit adjustment that applies to all less-than-well-capitalized, less-than-well-managed banks. These banks face a heightened risk of failure; thus liquidity and franchise value concerns for the banks are higher.

¹⁰⁹ As the result of changes that the FDIC made to the deposit insurance assessment system following enactment of Dodd-Frank, the adjusted brokered deposit ratio ceased to apply to large banks and highly complex banks as of April 1, 2011. For these banks, whether sweeps from affiliates or referrals from affiliates (or agents) are included in the ratio does not affect their assessment rates. In fact, the presence of brokered deposits in general does not directly affect these banks' assessment rates, provided that they remain well managed and well capitalized.

X. Dodd-Frank Issues

As discussed in the introduction, Dodd-Frank requires that the study on core deposits and brokered deposits evaluate several specific issues. This section evaluates those issues based on the foregoing study.

A. Evaluate the Definition of Core Deposits for the Purpose of Calculating the Deposit Insurance Premiums of Banks

At present, the deposit insurance assessment system uses the concept of core deposits in only one way. As discussed in Section V(B), the assessment rate of a large bank or a highly complex bank depends, in part, on its ratio of core deposits to total liabilities. For assessment purposes, the core deposits ratio is defined as total domestic deposits excluding all brokered deposits and uninsured non-brokered time deposits divided by total liabilities. The FDIC includes the core deposits ratio because it is one of the measures most relevant to assessing a large bank's ability to withstand funding related stress and has been found to be statistically significant in predicting a large bank's long-term performance.

As discussed in Section VI(B), the FDIC has found that core deposits, defined to exclude insured brokered deposits, are significantly correlated with lower probability of failure and lower loss when failure occurs for all banks. Based on this statistical finding, it may be possible to incorporate core deposits into the assessment system in a way that applies to all banks, large and small, but further research is necessary to determine whether and how best to do so.

B. Evaluate the Potential Impact on the DIF of Revising the Definitions of Brokered Deposits and Core Deposits to Better Distinguish between Them

The definitions of core and brokered deposits currently in use distinguish the two concepts well. As discussed in Section VI(B), core deposits, defined to exclude insured brokered deposits, are associated with a lower probability of failure and lower losses to the FDIC upon failure. Brokered deposits, as currently defined, are associated with lower core deposit ratios, more rapid growth, worse loan performance, a higher probability of failure, and higher losses to the FDIC in the event of failure.

Changing the statutory definition of brokered deposits or the UBPR definition of core deposits would have no effect on the DIF, in part because the FDIC has complete flexibility to define these concepts for purposes of deposit insurance assessments and already uses slightly different definitions from either the statute or the UBPR. At present, the deposit insurance assessment system uses the concept of core deposits in only one way. As discussed in Section V(B), the assessment rate of a large bank or a highly complex bank depends, in part, on its ratio of core deposits to total liabilities. The core deposits ratio is defined as total domestic deposits excluding all brokered deposits and uninsured non-brokered time deposits divided by total liabilities. This definition differs slightly from the UBPR definition in that it excludes all brokered deposits rather than simply insured brokered deposits. The FDIC includes this core deposits ratio because it

is one of the measures most relevant to assessing a large bank's ability to withstand funding related stress and has been found to be statistically significant in predicting a large bank's long-term performance.

As also discussed in Section V(B), the assessment rate of a small bank that is well capitalized and has a composite CAMELS rating of 1 or 2 depends, in part, on an adjusted brokered deposit ratio. A bank's assessment rate will increase if its total gross assets were more than 40 percent greater than they were four years previously, after adjusting for mergers and acquisitions, and its brokered deposits make up more than 10 percent of its domestic deposits. The adjusted brokered deposit ratio was included in the assessment system based upon a statistical analysis that revealed a significant correlation between rapid asset growth funded by brokered deposits and the probability of a bank's being downgraded from a CAMELS composite 1 or 2 rating to a CAMELS composite 3, 4 or 5 rating within a year. Unlike the statutory definition, brokered deposits for purposes of calculating the adjusted brokered deposit ratio exclude reciprocal deposits (although sweeps and all other brokered deposits are included).¹¹⁰

As discussed in the previous section, the FDIC may consider possibly making a bank's assessment rate increase for greater levels of high rate deposits and may consider possibly excluding some or all sweeps and referrals from affiliates from the adjusted brokered deposit ratio, but doing so would, again, require additional reporting. However, liquidity and franchise value concerns are heightened when an institution is less than well managed or has poor CAMELS ratings. Therefore, all brokered deposits, as defined by the statute, should continue to be included in the brokered deposit adjustment, which applies to all banks that are not well capitalized or well managed.

These changes would only affect relative assessment rates between institutions. Riskier institutions would pay relatively higher assessment rates and less risky institutions would pay relatively lower ones. The changes would have no effect on the DIF, however, since overall assessment rates are set to ensure the revenue needs of the fund.

C. Evaluate an Assessment of the Differences between Core Deposits and Brokered Deposits and Their Role in the Economy and Banking Sector of the United States

Under their current definitions, brokered deposits and core deposits have had measurably divergent effects on the banking sector. As discussed in Section VI, while brokered deposits can be a valuable funding source when used prudently, numerous studies have found that a bank's use of brokered deposits contributes significantly to its likelihood of failure and increases the FDIC's losses upon failure. Statistical analysis shows that brokered deposits' correlation with higher likelihood of failure and higher losses upon failure are due to banks' tendency to substitute brokered deposits for core

¹¹⁰ As also discussed in Section V(B), the deposit insurance assessment system also uses the concept of brokered deposits in one other way. The assessment rate of a bank that is less than well capitalized or that is less than well managed (that is, its composite CAMELS rating is 3, 4 or 5) may increase by up to 10 basis points if its ratio of brokered deposits to domestic deposits is sufficiently great. This brokered deposit adjustment takes into account all brokered deposits as statutorily defined.

deposits, which results in greater bank fragility. In addition, banks have used brokered deposits to fund aggressive growth strategies that led to poor loan performance. The use of brokered deposits may in some cases also compound liquidity risks because of their generally volatile nature.

By contrast, core deposits are intended to encompass stable, lower-cost deposits that enhance a bank's franchise value. While it is difficult to clearly capture these conceptual characteristics into a single definition, numerous studies have analyzed core deposits using various definitions that aim to include their key features. These studies have consistently found that the use of core deposits by failed banks decreases losses to the FDIC, which, in the long term, decreases bank premiums to support the DIF. The FDIC's statistical analysis has also found that core deposits are significantly correlated with a lower probability of failure.

The different effects that brokered and core deposits have on banks similarly affect the broader economy. Brokered deposits can affect a local economy differently depending on their prudent or imprudent use. On one hand, community banks may use brokered deposits to supplement local retail deposits to meet the credit demands of the local economy. On the other hand, as the FDIC's research shows, the imprudent use of brokered deposit funding can help accelerate bank failures, which have damaging effects on a local economy by disrupting the supply of credit to local borrowers. By contrast, core deposits generally help sustain lending in a local economy. For example, one study of bank liquidity risk management during 2007 to 2009 found that banks using more core deposits and equity capital to finance their assets saw significant increases in lending relative to banks that relied more on wholesale sources of debt financing.¹¹¹ Another study found that banks funded more heavily with core deposits, defined as those under the deposit insurance limit, were able to insulate borrowers from credit shocks by providing smaller increases in loan markups compared to banks with lower levels of core deposits.¹¹²

- D. Evaluate the Potential Stimulative Effect on Local Economies of Redefining Core Deposits; and
- E. Evaluate the Competitive Parity between Large Banks and Community Banks That Could Result from Redefining Core Deposits

As discussed above, core deposits, defined to exclude insured brokered deposits, are statistically significantly correlated with a lower probability of failure and lower losses to the FDIC upon failure. Brokered deposits, as currently defined, are correlated with lower capital levels, lower core deposit ratios, more rapid growth, worse loan performance, a higher probability of failure, and higher losses to the FDIC in the event of failure to a statistically significant degree.

¹¹¹ Marcia Millon Cornett, Jamie John McNutt, Philip E. Strahan, and Hassan Tehranian, "Liquidity Risk Management and Credit Supply in the Financial Crisis," *Journal of Financial Economics*, vol. 101, no. 2 (August 2011): 297-312.

¹¹² Mitchell Berlin and Loretta J. Mester, "Deposits and Relationship Lending," *Review of Financial Studies*, vol. 12, no.3 (Fall 1999): 579-607.

Redefining core deposits to include brokered deposits in the FDIC's supervisory and assessment systems or eliminating or weakening the brokered deposit statute would probably increase the use of brokered deposits. On average, statistical research reveals that increased use of brokered deposits would increase the number of bank failures and the FDIC's losses upon failure. Because of these increased losses, the FDIC would have to collect more in deposit insurance assessments to maintain the DIF, reducing the amount of funds that banks have available to lend in the local economy and nationwide.

These increased losses and higher assessments would frustrate goals that the FDIC has set for the DIF in light of the increased flexibility to manage the fund that Dodd-Frank granted the FDIC. Under Dodd-Frank, the FDIC gained the ability to achieve goals for fund management that it has sought to achieve for decades but lacked the tools to accomplish: maintaining a positive fund balance even during a banking crisis and maintaining moderate, steady assessment rates throughout economic and credit cycles. Increased fund losses resulting from increased use of brokered deposits could frustrate these goals, requiring higher and less constant assessment rates and a larger fund size.

Moreover, increased use of what were formerly brokered deposits—and thus increased failures—would likely be most pronounced among community banks. The largest banks (those with assets over \$50 billion) have relatively low reliance on brokered deposits, probably because of their ready access to alternative funding sources, such as the wholesale money markets.¹¹³ Increased losses among community banks would not increase the competitive parity between large banks and community banks.

While the FDIC has concluded that the definition of core deposits should not be changed, as discussed in the previous section, the FDIC may consider some modifications to the assessment system, such as possibly including high rate deposits in the brokered deposit adjustment and adjusted brokered deposit ratio and possibly excluding some or all sweeps from affiliates and some or all referrals from affiliates from the adjusted brokered deposit ratio. At the margin, charging more for high rate deposits should reduce banks' reliance on these deposits, which is likely to reduce the incentive to make riskier, high rate loans. Also, at the margin, charging less for sweeps from affiliates and referrals from affiliates should increase the use of these deposits. However, these deposits are only used by a small number of institutions, so that the effect on the economy or competitive parity should be minimal.

¹¹³ The smallest banks (assets under \$1 billion) held brokered deposits equal to just 4.3 percent of their domestic deposits at year-end 2010. The largest banks (assets over \$50 billion) held brokered deposits totaling 6.2 percent of their domestic deposits as of that date. In contrast, banks with assets between \$1 billion and \$50 billion, on average, relied more heavily on brokered deposits. Banks with assets between \$1 billion and \$10 billion held brokered deposits totaling 9.8 percent of their domestic deposits as of year-end 2010 and banks with assets between \$10 billion and \$50 billion held brokered deposits totaling 13.5 percent of their domestic deposits as of that date.

Appendix A

Excerpts from Material Loss Reviews And Summaries of OIG Semiannual Reports to Congress

The following are specific findings relating to brokered deposits from MLRs:

- With respect to the causes of banks' failures, we found overly aggressive growth strategies fueled by volatile and costly wholesale funding (e.g. brokered deposits, FHLB loans, etc.) . . .¹¹⁴
- Lesson learned: Traditional sources of liquidity available under normal economic conditions may be severely curtailed for banks experiencing a distressed financial condition.¹¹⁵
- The bank's liquidity sources were heavily concentrated in brokered deposits, which are generally highly interest-rate sensitive and therefore less stable as a deposit source than retail deposits.¹¹⁶
- . . . [B]rokered deposits helped fuel the bank's rapid asset growth and, therefore, was integral to the bank's ability to obtain and sustain its excessive CRE and ADC concentrations.¹¹⁷
- Reliance on brokered deposits led to a high noncore funding dependence ratio, which generally indicates greater risk exposure and a reliance on funding sources that may not be available in times of financial stress or adverse changes in market conditions.¹¹⁸
- Reliance on high-rate CDs and brokered deposits is considered a risky strategy that can have a significant negative effect on liquidity. These depositors typically have no other relationship with the bank and are only seeking the highest possible return on investment.¹¹⁹

¹¹⁴ Department of the Treasury Office of Inspector General, Semiannual Report to Congress October 1, 2009, March 31, 2010.

¹¹⁵ The Department of the Treasury Office of Inspector General, MLR for IndyMac Bank, FSB, Pasadena, California.

¹¹⁶ The Department of the Treasury Office of Inspector General, MLR for ANB Financial, National Association, Bentonville, Arkansas.

¹¹⁷ FDIC's Office of Inspector General, MLR for Broadway Bank, Chicago, Illinois.

¹¹⁸ *Id.*

¹¹⁹ Board of Governors of the Federal Reserve System Office of Inspector General, MLR for SolutionsBank, Overland Park, Kansas.

- Absent sound financial conditions, the volatility and higher cost of brokered deposit funding could put a bank at risk.¹²⁰

The following are summaries of OIG comments from Semiannual Reports to Congress that address causes of insured bank failures, the types of assets involved, and the sources of funding used to acquire the assets.

FDIC’s Office of Inspector General, Semiannual Report to the Congress, April 1, 2009 through September 30, 2009

- 18 MLRs have identified the following risky behaviors: pursuit of aggressive growth in CRE and ADC loans, excessive levels of asset concentration with little risk mitigation, and reliance on wholesale funding to fund asset growth.
- Most banks failed because their boards of directors and management did not implement effective risk management practices with respect to rapid growth and significant concentrations in riskier assets, such as CRE and ADC.
- Failed banks often exhibited a growing dependence on volatile, noncore funding sources, particularly brokered deposits and, in some cases, FHLB advances and Internet CDs.

FDIC’s Office of Inspector General, Semiannual Report to the Congress, October 1, 2009 through March 31, 2010

- Reached the same conclusions as the April through September 2009 report.

Treasury’s Office of Inspector General, Semiannual Report to the Congress, April 1, 2009 through September 30, 2009

- From the 11 MLRs completed as of September 30, 2009, causes of banks’ failures included overly aggressive growth strategies, risky loans (such as option adjustable rate mortgages), coupled with inadequate risk management and unsound underwriting, high concentrations in riskier areas like CRE, and heavy reliance on more costly wholesale funding, such as FHLB loans and brokered deposits.

Treasury’s Office of Inspector General, Semiannual Report to the Congress – October 1, 2009 through March 31, 2010

- Several trends have emerged from the 17 MLRs completed in total during the current economic crisis. Causes of banks’ failures included overly aggressive growth fueled by volatile and costly wholesale funding (e.g., brokered deposits, FHLB loans), risky loans (such as option adjustable rate mortgages), unsound

¹²⁰ FDIC’s Office of Inspector General, MLR for MagnetBank, Salt Lake City, Utah.

underwriting, high asset concentrations, including high concentrations in CRE loans, and inadequate risk management systems.

Treasury's Office of Inspector General, Semiannual Report to the Congress, April 1, 2010 through September 30, 2010

- Several trends have emerged from evaluation of the WaMu failure and the 21 MLRs completed during the current economic crisis. Causes of banks' failures included poor underwriting and overly aggressive growth fueled by volatile and costly wholesale funding (e.g., brokered deposits, FHLB loans), risky loans (such as option ARMs), high asset concentrations, including high concentrations in CRE loans, and inadequate risk management systems.

In summary, the MLRs and Semiannual Reports to the Congress reviewed by the FDIC found that a number of failed banks relied on brokered deposits and other volatile funding sources to fund aggressive growth. While none of these MLRs and Reports determined that brokered deposits directly caused failure, aggressive growth could not have been pursued without volatile funding sources such as brokered deposits.

Appendix B

Statistical Analysis

Introduction

The analysis summarized in this appendix shows that core deposits are a source of bank stability. On average, banks with a higher share of core deposit funding have a lower probability of default. Should a bank fail, a higher share of core deposit funding will, on average, impose a smaller loss on the DIF. In contrast, on average, the use of brokered deposits is associated with a higher probability of bank failure and higher insurance fund losses should failure occur. These statistical results are highly significant and estimates show that the use of brokered deposits can have economically important effects on the estimated probability of failure and insurance fund loss rates.

While brokered deposits are associated with a higher probability of bank failure, it is important to understand the economic channels that generate the increase in failure probability. We estimate a series of econometric models that allow us to determine why the use of brokered deposits raises the probability of bank failure. We find that brokered deposits often are used to create bank liability structures that result in higher bank probability of default and higher insurer loss rates in default compared to banks that do not use brokered deposits. We also find statistically significant evidence that brokered deposits often are associated with higher than average levels of asset growth and higher proportions of nonperforming loans. On balance, the brokered deposits use is a reliable indicator of an elevated bank risk profile.

Our findings regarding brokered deposits' effect on the probability of bank failure are fully consistent with standard economic models. We find that, on average, brokered deposits are used primarily as a substitute for core deposits. Other things equal, banks with a higher share of core deposit funding experience a lower probability of default. Because banks that use brokered deposits on average substitute brokered deposits for core deposits, on average, banks that use brokered deposits have a higher probability of default. When brokered deposits are used as a substitute for non-core bank deposits and other bank liabilities, brokered deposits do not have a statistically measureable effect on the probability of bank failure, provided the bank's leverage ratio, asset growth and nonperforming loan rate remain unchanged.

Few banks, however, are likely to satisfy a profile of brokered deposit use that has no impact on their risk profile, as the data also suggests that banks that use brokered deposits have higher asset growth rates and subsequently a larger share of nonperforming loans. We estimate a series of econometric models and establish that the use of brokered deposits is, on average, linked to higher growth in bank assets and riskier bank lending policies that are reflected in poorer *ex post* loan performance. We find a strong statistically significant link between the use of brokered deposits and asset growth rates as well as with higher future rates of noncurrent and nonperforming loans.

There is strong statistical evidence that, when banks fail, brokered deposits are associated with higher DIF losses. Analysis shows that the sources of heightened loss are primarily core deposit substitution, but there is also evidence that failed banks that use brokered deposits have higher leverage.

Some have argued that the use of reciprocal deposits, a special category of brokered deposits, has little or no effect on the probability of bank default. The data available to study the effects of reciprocal deposits separate from brokered deposits is limited as regulatory data on reciprocal deposits have only been collected since June 2009. The short span of data that is available for analysis is associated with a period of heightened supervision and unusually high rate of bank failures. There are indications that the characteristics of these data may not be completely consistent with the larger bank failure sample. For example, one uncharacteristic feature is that, during this interval, higher core deposits are not associated with lower DIF losses. The value of core deposits may have depressed by the unusually intensive FDIC resolution activities with an unusually large number of banking franchises available, heavy reliance on loss sharing agreements, near zero interest rates, and a weak extended outlook for lending growth.

Data limitations restrict our analysis of the reciprocal deposits data as they only allow us to estimate two-year bank failure probability models. The analysis of the reciprocal deposit data shows that reciprocal deposits are statistically insignificant in bank failure probability models and insurance loss rate estimates, while the use of non-reciprocal brokered deposits is predictive of higher failure and loss rates. A possible explanation is that, among banks that failed during this period, banks that used reciprocal deposits did not use them as a substitute for equity or core deposits, whereas banks that used non-reciprocal brokered deposits, on average, had lower equity and core deposit ratios.

The limited evidence available suggests that banks that used reciprocal deposits during this period may have had a different risk profile compared to banks that relied on other brokered deposits, but we do not have an explanation for why reciprocal deposit-taking banks behaved differently. These risk profile differences may owe to difference in supervision, bank management choices, or to features of the reciprocal deposit market. The data sample available for study is too small and specialized to support conclusive findings. Unless there is some unidentified mechanism in place that prevents reciprocal deposits from replacing equity or core deposits or allowing banks to grow and take on additional risks, reciprocal brokered deposits can be used to increase a bank's risk profile in exactly the same ways that banks have used non-reciprocal brokered deposits to increase FDIC risk.

Data

The analysis of banks 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 January 1, 1988 and April 8, 2011. 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. In our data, thrifts are included only starting from 1996. Moreover, the analysis excludes any bank or thrift that received open bank assistance. 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 2008 to predict bank failures from 1988 to 2011.^[1] The models are estimated as a pooled time-series cross section.

Bank failures are modeled as a function of banks’ income statement and balance sheet information, supervisory 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^[2] 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 nonaccruing loans. We also include a bank’s concentration in CRE, C&D, C&I, and consumer loans. Three lagged asset growth rates are included to capture a trend in a bank’s growth in recent years.

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 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 CAMELS rating is 3. “CAMELS 4 or 5” is a binary variable that indicates a bank’s CAMELS rating is 4 or 5.

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.^[3]

Loss Rate Models

Failed bank loss rates are computed as a ratio of the most recent estimate of the DIF 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 February 25, 2011.^[4] The banks in the sample were insured by the Bank Insurance Fund (BIF), Savings Association Insurance Fund (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 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.^[5]

Bank Asset Growth Rate Models

To analyze the relationship between brokered deposits and bank growth, we use Call Report/TFR data to compute banks' 3 year growth rates and their 3 year average brokered deposit to asset ratios. To make the timing convention concrete, in our study, a bank's 2009 growth rate (for example) refers to the change in bank's asset size from December 2006 to December 2009. We include data for 3 year non-overlapping intervals. Our sample includes data from 1988, 1991, 1994, 1997, 2000, 2003, 2006, and 2009.

Bank Nonperforming Loan Rate Models

To analyze the relationship between brokered deposits and asset quality, we use data from December Call Reports/TFRs to predict a bank's year-end nonperforming loans at the end of three years. We estimate the brokered deposits and asset quality relationship with a time lag because experience suggests that banks that embark on higher risk lending strategies do not experience an immediate increase in the relative share of problem assets as newly underwritten loans often take time to season and default. In this analysis, year-end Call Reports/TFRs from 1987 to 2007 are pooled to predict bank's year-end nonperforming loans from 1990 to 2010. To account for consolidation in the banking industry, the data are adjusted for mergers.^[6]

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 2010.

Estimation Results

Core Deposits, Bank Failure Probability and Insurance Fund Loss Rates

In this section, we examine the relationship between core deposits, bank failure probability and loss rates to the insurance fund. Core deposits provide a bank with a stable and 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 B-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. Holding constant bank equity, the core deposits ratio is negative and statistically significant, suggesting that banks with higher core deposits have lower failure probability.^[7]

Table B-1

Core Deposits and Bank Failure Probabilities

Variable	Coefficient Estimates
Intercept	-4.798***
Equity	-0.258***
Core deposits	-0.029***
Nonperforming loans	0.130***
Other real estate owned	0.151***
Income before taxes	-0.089***
CAMELS_3	1.246***
CAMELS_4 or 5	2.131***
Asset growth (t-3)	0.007***
Asset growth (t-4)	0.009***
Asset growth (t-5)	0.002
CRE loans	0.018***
C&D loans	0.049***
C&I loans	0.021***
Consumer loans	0.009**
Interest expense	0.117***
Pseudo R^2	0.513
Likelihood ratio	6,150***
No. of observations	82,304

*** Indicates statistical significance at the 1 percent confidence level.

** Indicates statistical significance at the 5% confidence level.

Estimates use data from 1987 to 2008 to predict bank failures from 1988 to 2011.

The regressions include time fixed effects, but coefficient estimates are not reported.

Table B-2 reports results of the failure loss rate models that include controls for equity and core deposits. The estimated coefficient on core deposits is -0.104 and statistically significant, implying that a 1% increase in core deposits to assets ratio is associated with a roughly 10 basis point decrease in failure loss rate.

Table B-2

Core Deposits and FDIC Loss Rates

Variables	Coefficient Estimates
Intercept	18.047***
Equity	-0.553***
Core deposits	-0.104***
Nonperforming loans	0.312***
Other real estate owned	0.714***
Income earned but not collected	3.912***
Loan to executive officers	0.272***
Bank size between \$500 mil-\$1 bil	-4.919***
Bank size > 1 billion	-8.171***
CRE loans	0.025***
C&D loans	0.109***
C&I loans	0.203***
Consumer loans	0.108***
R^2	0.399
No. of observations	1,757

*** Indicates statistical significance at the 1 percent confidence level.

Estimates use data from 1984 to 2010 to predict failure loss rates in 1984 to 2011.

The regressions include time fixed effects, but the coefficient estimates are not reported.

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 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 B-3. Column (1) of Table B-3 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 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 three lagged asset growth rates and bank failures. The estimated coefficients for all three growth rates are positive and statistically

significant suggesting that, other things equal, banks experiencing rapid growth in any of the prior three years 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 (all are statistically significant). Banks with a CAMELS rating of 3, 4 or 5 are more likely to fail compared to CAMELS 1 or 2 rated banks. This model specification does not show a statistically significant relationship between interest expense and bank failures. The model also includes time fixed effects, but these estimates are not reported.^[8]

In the estimates reported in Table B-3, 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 use of brokered deposits (i.e., 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 B-3.

To control for bank leverage, we include a bank's equity-to-asset ratio in the failure model. The results are reported in Table B-3, 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 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.

Holding constant a bank's leverage ratio, the use of brokered deposits raises the 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 B-3, 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 statistically insignificant. 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 does not affect a bank's probability of failure.

In Table B-3, 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 and the results in Column (3) 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.

The coefficient estimates in Table B-3 cannot be directly interpreted in terms of their marginal effects on a bank's probability of default. These marginal effects can be estimated and they are reported in Table B-4.^[9]

The economic importance of an increase in brokered deposits is best understood by considering a comparative static exercise using the estimates reported in Column (4) of Table B-4. To understand the effect of an increase in brokered deposits, consider the following scenario. Hold constant a bank's nonperforming loan ratio, past growth rates, its interest expense, and all other independent variables included in the regression except two funding variables. Assume that a bank increases its brokered deposit use by 1 percentage point (i.e., a 1 percentage point increase in its brokered deposits to asset ratio). If these funds are used to replace equity (reduce the bank's equity-to-asset ratio by 1 percentage points), the estimates suggest that the bank's probability of default will rise by roughly 22 basis points. If this increase in brokered deposits is instead used to offset core deposits, the estimates suggest that a bank's probability of default will increase by about 3 basis points.^[10]

Table B-3

Brokered Deposits and Failure Probability over a Three-Year Horizon

	(1)	(2)	(3)	(4)
Variables	Coefficient Estimates	Coefficient Estimates	Coefficient Estimates	Coefficient Estimates
Intercept	-9.417***	-7.120***	-7.835***	-4.701***
Brokered deposits	0.022***	0.020***	0.004	-0.006
Equity		-0.249***		-0.259***
Core deposits			-0.022***	-0.031***
Nonperforming loans	0.166***	0.137***	0.164***	0.130***
Other real estate owned	0.169***	0.145***	0.174***	0.151***
Income before taxes	-0.106***	-0.091***	-0.100***	-0.090***
Interest expense	0.011	0.156***	-0.009	0.118***
CAMELS rating 3	1.347***	1.249***	1.354***	1.249***
CAMELS rating 4 or 5	2.655***	2.045***	2.737***	2.142***
Asset growth (t-3)	0.006**	0.009***	0.004*	0.007***
Asset growth (t-4)	0.010***	0.010***	0.009***	0.009***
Asset growth (t-5)	0.004***	0.003*	0.004**	0.002
CRE loans	0.021***	0.019***	0.020***	0.018***
C&D loans	0.053***	0.054***	0.050***	0.049***
C&I loans	0.027***	0.027***	0.024***	0.021***
Consumer loans	0.015***	0.010**	0.013***	0.009**
Pseudo R^2	0.475	0.505	0.480	0.513
Likelihood ratio	5,719***	6,071***	5,778***	6,169***
No. of observations	82,304	82,304	82,304	82,304

*** Indicates statistical significance at the 1 percent confidence level. ** Indicates statistical significance at the 5% confidence level.

Estimates use data from 1987 to 2008 to predict bank failures from 1988 to 2011.

The regressions include time fixed effects, but the coefficient estimates are not reported.

Table B-4

Marginal Probability Estimates for Brokered Deposit Three-Year Failure Models

	(1)	(2)	(3)	(4)
Variables	Marginal Probability	Marginal Probability	Marginal Probability	Marginal Probability
Brokered deposits	0.0002***	0.0002***	0.00004	-0.0001
Equity		-0.0022***		-0.0022***
Core deposits			-0.0002***	-0.0003***
Nonperforming loans	0.0015***	0.0012***	0.0015***	0.0011***
Other real estate owned	0.0016***	0.0013***	0.0016***	0.0013***
Income before taxes	-0.0010***	-0.0008***	-0.0009***	-0.0008***
Interest expense	0.0001	0.0014***	-0.0001	0.0010***
CAMELS rating 3	0.0159***	0.0136***	0.0159***	0.0134***
CAMELS rating 4 or 5	0.0490***	0.0292***	0.0514***	0.0309***
Asset growth (t-3)	0.0001**	0.0001***	0.00004*	0.0001***
Asset growth (t-4)	0.0001***	0.0001***	0.0001***	0.0001***
Asset growth (t-5)	0.00004***	0.00003*	0.00003**	0.00002
CRE loans	0.0002***	0.0002***	0.0002***	0.0002***
C&D loans	0.0005***	0.0005***	0.0005***	0.0004***
C&I loans	0.0003***	0.0002***	0.0002***	0.0002***
Consumer loans	0.0001***	0.0001**	0.0001***	0.0001**
No. of observations	82,304	82,304	82,304	82,304

*** Indicates statistical significance at the 1 percent confidence level. ** Indicates statistical significance at the 5% confidence level.

Estimates use data from 1987 to 2008 to predict bank failures from 1988 to 2011.

The regressions include time fixed effects, but the coefficients are not reported.

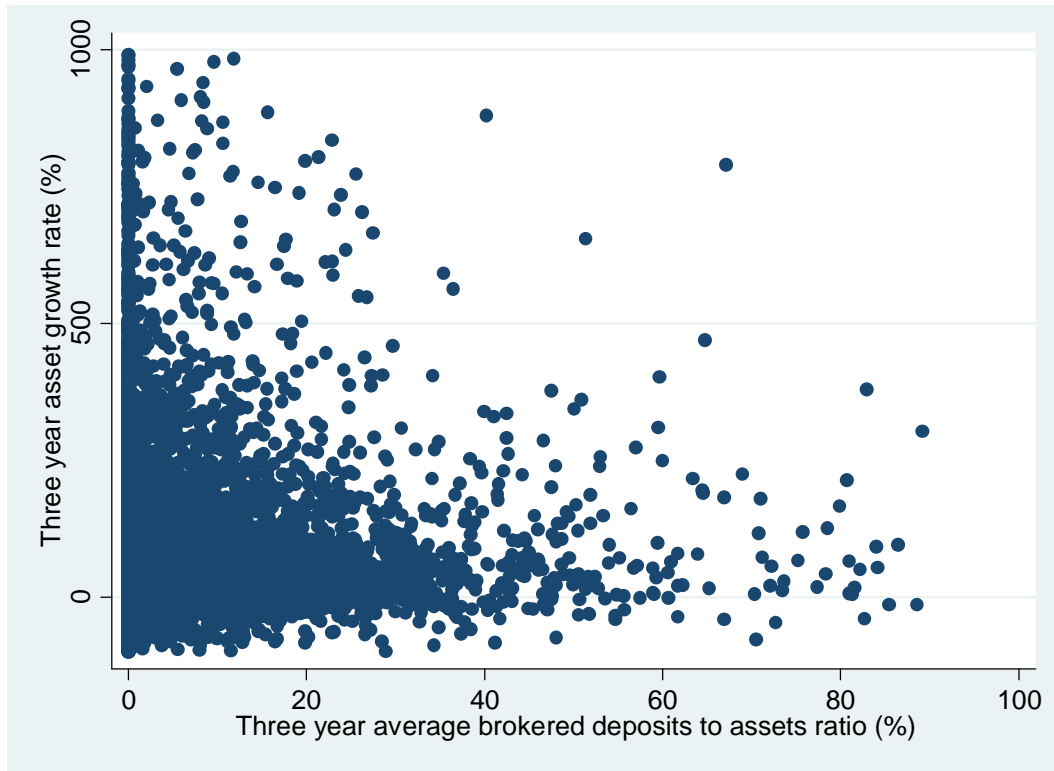
To summarize, these series of regression model estimates show that the use of brokered deposits is associated with a higher probability of bank default. The higher probability owes primarily to a core deposit effect: banks often substitute brokered deposits for core deposits, which reduces the independent stability effects associated with core deposits. Should a bank substitute brokered deposits for equity, the effects on a bank's projected probability of default are much larger, but the data suggest that this substitution has been historically less common. 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

In this section we analyze the relationship between the use of brokered deposits and the rate at which a bank grows its balance sheet. Figure B-1 is the scatter plot of ratio of brokered deposits to assets averaged over 3 years, and 3-year asset growth rates.

Figure B-1

Scatter Plot of 3 Year Average Brokered to Assets Ratio and 3 Year Asset Growth Rate



A bank's growth rate is determined by many factors. 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. Since bank growth rates and the use of brokered deposits are contemporaneous, and both are the consequence of a bank's management choices, both variables are endogenous, and the models we estimate do not necessarily provide unbiased estimates of the true underlying coefficients. The goal of this exercise is to gain some preliminary understanding of the correlation between growth and reliance on brokered deposits.

Analysis of the data shows that the growth rates exhibited by *de novo* banks differ significantly from the growth rates observed for established institutions. Consequently, we include a binary variable that allows *de novos* to grow at a different average rate than the other institutions.

Table B-5

Three Year Asset Growth Rate Regression Models

	(1)	(2)	(3)
Variable	Coefficient Estimates	Coefficient Estimates	Coefficient Estimates
Intercept	17.974***	17.173***	17.501***
<i>De Novo</i>	119.245***	120.189***	118.419***
Brokered deposits	1.476***		
Brokered deposit dummy		12.988***	
0 < Brokered deposit ratio < 4			7.336***
4 ≤ Brokered deposit ratio < 8			19.245***
Brokered deposit ratio ≥ 8			32.227***
Adj. R^2	0.216	0.213	0.218
Number of observations	79,930	79,930	79,930

*** Indicates statistical significance at the 1 percent confidence level. ** Indicates statistical significance at the 5% confidence level.

The regressions include time fixed effects, but the coefficient estimates are not reported.

The estimated brokered deposit coefficient in Column (1) of Table B-5 (1.476) is positive and statistically significant, indicating that, as a bank's 3-year average brokered deposit ratio goes up by 1%, its three year asset growth rate goes up by 1.476%. The coefficient estimate for *de novos* suggests that the 3-year growth rate of *de novos* is, on average, 119% higher than the growth rate of established banks. The regressions in Table B-5 also include time fixed effects, but these estimates are not reported.^[11]

Column (2) of Table B-5 reports results when 3-year average brokered deposits ratio is replaced by a binary variable indicating that a bank has a non-zero average brokered deposit ratio. The estimated coefficient for this binary variable is 12.988 with statistical significance at the 1% level, implying that banks with brokered deposits exhibit growth rates that are 12.988% higher on average.

Column (3) of Table B-5 reports results when brokered deposits are allowed to have a non-linear impact on growth rates. The effect of a bank's brokered deposit ratio is modeled as a piecewise linear model with a 0% bucket (a bank has no brokered deposits), a 0-4% bucket (brokered deposits make up less than 4% of its assets), and 4-8% bucket (brokered deposits make up between 4 and 8% of a bank's assets), and more than 8% bucket (brokered deposits make up more than 8% of a bank's assets). The coefficient estimates increase monotonically: the estimated coefficient for 4-8% bucket (19.245) is greater than that for 0-4% bucket (7.336) while the coefficient estimate for the "brokered deposits > 8%" category is the largest (32.227). These estimates imply that bank average growth rates are higher the larger the share of bank assets funded with brokered deposits.

Overall, this 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.

Nonperforming Loans

The use of brokered deposits is associated with a higher probability of bank default. While the default prediction models in the prior section identify the liability channels that resulted in higher default probabilities, they do not identify all the operational channels through which brokered deposits increase the FDIC's risk exposure. In this section, we investigate the hypothesis that a bank's use of brokered deposits is often associated with a relatively aggressive bank management appetite for risk. 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. We test this hypothesis by estimating various models that explain the level of non-performing bank loans using macroeconomic controls and bank-specific measures of risk, including variables that measure their use of brokered deposit funding.

Table B-6 reports the results of regression analysis that models banks' nonperforming loans to assets ratios as a function of individual bank income statement and balance sheet information three years prior. Nonperforming loans are defined as a sum of loans past due 90+ days, non-accruing loans, and other real estate owned.

Column (1) of Table B-6 reports that the estimated coefficient for the brokered deposits to assets ratio is 0.027 and statistically significant, implying that a 1% increase in the brokered deposit ratio is associated with a 2.7 basis point increase in the nonperforming loans ratio three years into the future. In contrast, the coefficient on the core deposits ratio is negative and statistically significant, indicating that, on average, higher core deposits are associated with more conservative lending practices.

Banks with high reserves, liquid assets, and consumer loans three years previously tend to have a lower nonperforming loan-to-asset ratio today. 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. An increase in bank size, on average, is associated with a lower nonperforming loan ratio. The model also includes year fixed effects (estimates not reported) to account for differences in unconditional nonperforming loans ratios across years.^[12]

Column (1) of Table B-6 shows that loans past due 30-89 days and nonperforming loan ratios three years prior are positively correlated with the current nonperforming loan ratio. Banks show persistence in their loan performance; that is,

banks with asset quality problems in the past tend to continue to have asset quality problems later. *De novo* banks tend to have lower nonperforming loans ratios. This likely reflects a lack of seasoning in *de novos*' loan portfolios.

The estimated coefficients for lagged asset growth rates are consistent with the dynamics of a “boom-bust” cycle. The estimated coefficient for asset growth rate (t-3) is positive and statistically significant, while those for the one and two year lagged asset growth rates are negative. The pattern is one where above average growth in bank lending lowers the share of past due loans for the first year or two. As the loans season into the third year, delinquency rates rise at a much faster pace than average loan balances and so the delinquency ratio increases. The pattern is consistent with rapid bank growth followed by loan performance problems.

The interpretation of the estimated equity coefficients is less straightforward. Positive estimated coefficients for 2- and 3-year lagged equity ratios imply that banks with above average equity ratios often subsequently experience higher loan delinquency rates. These results may owe to a simultaneous decision making process in which a bank management jointly determines its equity capital position and its risk strategy. For example, management may decide to retain additional equity when it undertakes a higher risk investment strategy in anticipation of higher future loan losses, which materialize with significant lags. The negative coefficient for the equity ratio in year (t-1) may be indicative of situations in which a bank management facing deteriorating credits decides simultaneously to bolster its equity position and undertake intensive risk mitigation efforts. These interpretations are only possibilities and no definitive explanation can be provided without additional research.

Column (2) reports results when the brokered deposits ratio is replaced by a binary variable indicating whether a bank uses brokered deposits. The estimated coefficient for this variable is 0.229 and statistically significant implying that, on average, banks with brokered deposits have a nonperforming loan ratio that is 23 basis points higher three years later. Column (3) reports results when the effect of the brokered deposit ratio is modeled as a piecewise linear model with a 0% bucket (a bank has no brokered deposits), a 0-4% bucket (brokered deposits make up less than 4% of its assets), and 4-8% bucket (brokered deposits make up between 4 and 8% of a bank's assets), and a more than 8% bucket (brokered deposits make up more than 8% of a bank's assets). The estimates suggest that, the more a bank relies on brokered deposits, the higher its nonperforming loan ratio three years later. The respective increments are 10.7 basis points, 36.4 basis points, and 64.3 basis points, compared to nonperforming loans ratios of banks that did not use brokered deposits.

Table B-7 reports results when an alternative definition of a nonperforming loans ratio is used: the sum of loans past due 90+ days and non-accruing loans. The results are qualitatively similar to those reported in Table B-6. Brokered deposits continue to be positively correlated with nonperforming loans ratios.

Table B-6

Nonperforming Loans Model (1990-2010)

	(1)	(2)	(3)
Variables	Coefficient Estimates ¹	Coefficient Estimates ¹	Coefficient Estimates ¹
Intercept	2.285***	2.541***	2.218***
Brokered deposits (t-3)	0.027***		
Brokered deposits Dummy		0.229***	
0% < Brokered deposits = 4%			0.107***
4% < Brokered deposits = 8%			0.364***
Brokered deposits > 8%			0.643***
Core deposits	-0.010***	-0.011***	-0.009***
Equity (t-1)	-0.071***	-0.071***	-0.071***
Equity (t-2)	0.038***	0.038***	0.038***
Equity (t-3)	0.032***	0.031***	0.033***
Reserves (t-3)	-0.098***	-0.099***	-0.101***
Past due loans 30-89 (t-3)	0.236***	0.236***	0.236***
Nonperforming loans (t-3)	0.346***	0.347***	0.346***
Liquid assets (t-3)	-0.008***	-0.007***	-0.007***
Interest expense (t-3)	0.048***	0.047***	0.046***
Income before taxes (t-3)	0.004**	0.004**	0.004***
C&I loans (t-3)	0.008***	0.008***	0.008***
Consumer loans (t-3)	-0.004***	-0.004***	-0.003***
C&D loans (t-3)	0.094***	0.094***	0.093***
CRE loans (t-3)	0.011***	0.011***	0.010***
De Novos (t-3)	-0.133***	-0.136***	-0.129***
Log [assets (t-3)]	-0.050***	-0.063***	-0.052***
Asset growth (t-1)	-0.021***	-0.021***	-0.021***
Asset growth (t-2)	-0.004***	-0.004***	-0.004***
Asset growth (t-3)	0.007***	0.007***	0.007***
R2	0.357	0.356	0.358
No. of observations	194,659	194,659	194,659

*** Indicates statistical significance at the 1 percent confidence level. ** Indicates statistical significance at the 5 percent confidence level.

Nonperforming loans are defined as the sum of loans past due 90+ days, non-accruing loans, and other real estate owned.

The regressions include time fixed effects, but the coefficient estimates are not reported.

Table B-7

Nonperforming Loans Model Using an Alternative Definition (1990-2010)

	(1)	(2)	(3)
Variables	Coefficient Estimates ¹	Coefficient Estimates ¹	Coefficient Estimates ¹
Intercept	1.406***	1.608***	1.354***
Brokered deposits (t-3)	0.022***		
Brokered deposits Dummy		0.195***	
0% < Brokered deposits = 4%			0.097***
4% < Brokered deposits = 8%			0.314***
Brokered deposits > 8%			0.516***
Core deposits	-0.006***	-0.007***	-0.005***
Equity (t-1)	-0.042***	-0.042***	-0.041***
Equity (t-2)	0.022***	0.023***	0.022***
Equity (t-3)	0.019***	0.017***	0.019***
Reserves (t-3)	-0.025***	-0.027***	-0.028***
Past due loans 30-89 (t-3)	0.163***	0.163***	0.163***
Nonperforming loans (t-3)	0.299***	0.300***	0.299***
Other real estate owned (t-3)	-0.034***	-0.034***	-0.033***
Liquid assets (t-3)	-0.006***	-0.006***	-0.006***
Interest expense (t-3)	0.029***	0.029***	0.028***
Income before taxes (t-3)	0.003***	0.003***	0.004***
C&I loans (t-3)	0.004***	0.004***	0.004***
Consumer loans (t-3)	-0.003***	-0.003***	-0.003***
C&D loans (t-3)	0.052***	0.052***	0.051***
CRE loans (t-3)	0.006***	0.006***	0.005***
De Novos (t-3)	-0.109***	-0.110***	-0.105***
Log [assets (t-3)]	-0.018***	-0.029***	-0.020***
Asset growth (t-1)	-0.012***	-0.012***	-0.012***
Asset growth (t-2)	-0.001***	-0.001***	-0.001***
Asset growth (t-3)	0.005***	0.005***	0.005***
R2	0.275	0.275	0.277
No. of observations	194,659	194,659	194,659

*** Indicates statistical significance at the 1 percent confidence level.

Nonperforming loans are defined as a sum of loans past due 90+ days and non-accruing loans.

The regressions include time fixed effects, but the coefficient estimates are not reported.

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.

Figure B-2 and Table B-8 show the distribution of loss rates for the failed banks in our sample. There is a wide dispersion in loss rates with the lowest rate at 0.00% and the highest at 93.55%. The median loss rate is 22.39%.

Figure B-2

Distribution of Loss Rates (1985-2011)

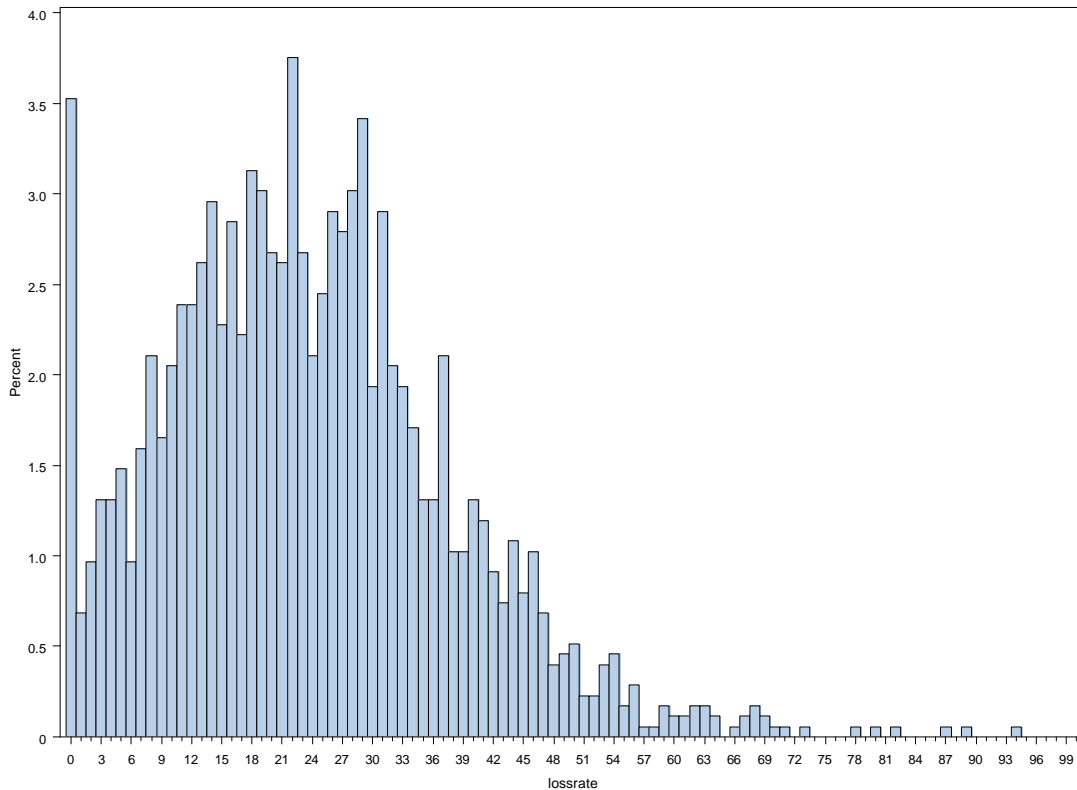


Table B-8

Distribution of Loss Rates

	No. of observations	Min	10 th	50 th	90 th	95 th	99 th	Max
1984-2011	1,757	0.00	6.37	22.39	41.76	47.77	64.25	93.55

Table B-9 reports the results of the loss rate regression analysis. Column (1) of Table B-9 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.^[13]

In the failure loss rate model specification reported in Table B-9, 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 B-9 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 B-9, 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 B-9, 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 B-9

Bank Failure Loss Rate Models (1984-2010)

	(1)	(2)	(3)	(4)
Variable	Coefficient Estimates	Coefficient Estimates	Coefficient Estimates	Coefficient Estimates
Intercept	6.607***	9.676***	10.707***	18.670***
Brokered deposits	0.106***	0.083***	0.057*	-0.023
Equity		-0.474***		-0.562***
Core deposits			-0.055***	-0.112***
Nonperforming loans	0.423***	0.308***	0.436***	0.312***
Other real estate owned	0.809***	0.705***	0.823***	0.715***
Income earned but not collected	3.396***	3.709***	3.482***	3.943***
Loan to executive officers	0.339***	0.307**	0.324**	0.272**
Bank size between \$500 mil-\$1 bil	-4.375***	-3.979***	-4.887***	-4.959***
Bank size > 1 billion	-6.931***	-6.868***	-7.594***	-8.219***
CRE loans	0.041	0.024	0.043	0.026
C&D loans	0.101**	0.128***	0.091**	0.113***
C&I loans	0.250***	0.223***	0.243***	0.203***
Consumer loans	0.131***	0.119***	0.127***	0.108***
Adjusted R^2	0.364	0.389	0.366	0.399
No. of observations	1,757	1,757	1,757	1,757

*** Indicates statistical significance at the 1 percent confidence level. ** Indicates statistical significance at the 5 percent confidence level.

Estimates use data from 1984 to 2010 to predict failure loss rates in 1984 to 2011.

The regressions include time fixed effects, but the coefficient estimates are not reported.

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.

The data show that while only 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. Since June 2009 (through December 2010), the use of reciprocal deposits has become more widespread, but it is still uncommon. Over this period, on average, the use of brokered deposits has declined but the relative importance of reciprocal deposits as a component of brokered deposits has increased.

Table B-10 reports the distribution of different brokered deposit ratios by Call Report date.^[14] The first panel of Table B-10 reports the distribution of different brokered deposit ratios (total brokered, reciprocal brokered, and non-reciprocal brokered deposits to assets ratios) for June 2009. The median values for each of these ratios are zero; in June 2009, out of 8,203 banks, 3,769 banks had non-zero brokered deposits.

In June 2009, an average bank's reliance on brokered deposits (4.37%) was split between reciprocal brokered deposits (0.72%) and non-reciprocal brokered deposits (3.65%). 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 13.87% and the maximum observed ratio is 48.87%.

Rows (4) and (5) of Table B-10 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.^[15] Among banks using brokered deposits, on average 23.08% of brokered deposits are reciprocal deposits. 14 percent of banks using brokered deposits use *only* reciprocal brokered deposits.

Rows (6) and (7) of Table B-10 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.

Across the available Call Report filing dates, the average banks' reliance on brokered deposits shows a declining trend. The mean total brokered to assets ratio in December 2010 was 2.94% which declined from 4.37% in June 2009. The trend for banks' reliance on reciprocal deposits is less clear. In June 2009, 1382 banks reported positive reciprocal deposit balances. This number grew to 1603 banks in June 2010, but subsequently declined to 1497 in December 2010. The average usage of reciprocal deposits is relatively stable; the mean reciprocal to assets ratio is 0.65% in December 2010 compared to 0.72% in June 2009. The data suggest that the reduction in total brokered deposits over time is attributed largely to non-reciprocal brokered deposits rather than reciprocal deposits. As a consequence, over time, reciprocal deposits have become a more important source for bank brokered deposit funding.

Figure B-3 graphs the distribution of reciprocal deposits to total assets ratio for December 2010. It is evident that a large proportion of banks do not fund with reciprocal deposits and only a small proportion of banks use reciprocal deposits. Figure B-4 graphs the distribution of the ratio of reciprocal deposits to total brokered deposits for banks that reported positive brokered deposits in December 2010. The bimodal distribution shows that a very large proportion of banks using brokered deposits do not have any reciprocal deposits but, at the same time, a significant share of banks using brokered deposits use *only* reciprocal deposits. Figure B-5 graphs the reciprocal deposits to brokered deposits ratio among banks with reciprocal deposits. Figure B-5 shows that, among banks that use

reciprocal deposits, for a substantial proportion, reciprocal deposits make up 100% of their brokered deposits.

Table B-10

Distribution of Different Brokered Deposits Ratios by Call Report Date

	Ratios	N	MAX	99th	95th	90th	MED	MEAN
	June 2009							
(1)	Total brokered/assets	8203	92.34	43.07	21.78	14.06	0.00	4.37
(2)	Reciprocal brokered/assets	8203	48.87	13.68	4.42	1.82	0.00	0.72
(3)	Non-reciprocal brokered/assets	8203	92.34	41.06	18.98	11.88	0.00	3.65
(4)	Reciprocal brokered/total brokered	3769	100.00	100.00	100.00	100.00	0.00	23.08
(5)	Non-reciprocal brokered/total brokered	3769	100.00	100.00	100.00	100.00	100.00	76.92
(6)	Reciprocal brokered/total brokered	1382	100.00	100.00	100.00	100.00	70.90	62.96
(7)	Non-reciprocal brokered/total brokered	1382	99.95	99.44	96.95	92.13	29.10	37.04
	September 2009							
(1)	Total brokered/assets	8107	91.70	40.89	20.37	12.98	0.00	4.10
(2)	Reciprocal brokered/assets	8107	45.08	14.41	4.92	2.13	0.00	0.78
(3)	Non-reciprocal brokered/assets	8107	91.70	39.41	17.47	10.59	0.00	3.32
(4)	Reciprocal brokered/total brokered	3692	100.00	100.00	100.00	100.00	0.00	26.21
(5)	Non-reciprocal brokered/total brokered	3692	100.00	100.00	100.00	100.00	100.00	73.79
(6)	Reciprocal brokered/total brokered	1513	100.00	100.00	100.00	100.00	74.52	63.97
(7)	Non-reciprocal brokered/total brokered	1513	99.93	99.56	97.05	92.67	25.48	36.03
	December 2009							
(1)	Total brokered/assets	8020	90.30	38.57	18.79	12.05	0.00	3.80
(2)	Reciprocal brokered/assets	8020	50.84	13.64	4.72	1.93	0.00	0.75
(3)	Non-reciprocal brokered/assets	8020	90.30	35.92	16.02	9.71	0.00	3.05
(4)	Reciprocal brokered/total brokered	3606	100.00	100.00	100.00	100.00	0.00	27.72
(5)	Non-reciprocal brokered/total brokered	3606	100.00	100.00	100.00	100.00	100.00	72.28
(6)	Reciprocal brokered/total brokered	1569	100.00	100.00	100.00	100.00	75.79	63.72
(7)	Non-reciprocal brokered/total brokered	1569	99.93	99.63	97.54	93.61	24.21	36.28
	March 2010							
(1)	Total brokered/assets	7941	90.65	36.83	17.74	11.32	0.00	3.61
(2)	Reciprocal brokered/assets	7941	56.60	13.20	4.81	1.94	0.00	0.76
(3)	Non-reciprocal brokered/assets	7941	90.65	34.38	15.37	8.92	0.00	2.85
(4)	Reciprocal brokered/total brokered	3560	100.00	100.00	100.00	100.00	0.00	29.01
(5)	Non-reciprocal brokered/total brokered	3560	100.00	100.00	100.00	100.00	100.00	70.99
(6)	Reciprocal brokered/total brokered	1588	100.00	100.00	100.00	100.00	82.61	65.04
(7)	Non-reciprocal brokered/total brokered	1588	99.96	99.60	96.99	93.13	17.39	34.96

	Ratios	N	MAX	99th	95th	90th	MED	MEAN
	June 2010							
(1)	Total brokered/assets	7839	90.01	34.74	16.54	10.39	0.00	3.36
(2)	Reciprocal brokered/assets	7839	55.87	13.29	4.75	1.93	0.00	0.75
(3)	Non-reciprocal brokered/assets	7839	90.01	31.97	13.99	8.14	0.00	2.61
(4)	Reciprocal brokered/total brokered	3468	100.00	100.00	100.00	100.00	0.00	30.61
(5)	Non-reciprocal brokered/total brokered	3468	100.00	100.00	100.00	100.00	100.00	69.39
(6)	Reciprocal brokered/total brokered	1603	100.00	100.00	100.00	100.00	86.71	66.22
(7)	Non-reciprocal brokered/total brokered	1603	99.96	99.50	96.98	92.75	13.29	33.78
	September 2010							
(1)	Total brokered/assets	7770	90.03	33.12	15.70	9.59	0.00	3.14
(2)	Reciprocal brokered/assets	7770	58.47	12.37	4.33	1.69	0.00	0.69
(3)	Non-reciprocal brokered/assets	7770	90.03	31.38	13.12	7.44	0.00	2.45
(4)	Reciprocal brokered/total brokered	3391	100.00	100.00	100.00	100.00	0.00	30.45
(5)	Non-reciprocal brokered/total brokered	3391	100.00	100.00	100.00	100.00	100.00	69.55
(6)	Reciprocal brokered/total brokered	1540	100.00	100.00	100.00	100.00	88.68	67.04
(7)	Non-reciprocal brokered/total brokered	1540	99.99	99.58	97.12	93.16	11.32	32.96
	December 2010							
(1)	Total brokered/assets	7666	90.76	32.61	14.79	8.97	0.00	2.94
(2)	Reciprocal brokered/assets	7666	58.17	11.81	4.18	1.62	0.00	0.65
(3)	Non-reciprocal brokered/assets	7666	90.76	29.84	12.05	6.94	0.00	2.28
(4)	Reciprocal brokered/total brokered	3312	100.00	100.00	100.00	100.00	0.00	30.52
(5)	Non-reciprocal brokered/total brokered	3312	100.00	100.00	100.00	100.00	100.00	69.48
(6)	Reciprocal brokered/total brokered	1497	100.00	100.00	100.00	100.00	91.38	67.53
(7)	Non-reciprocal brokered/total brokered	1497	99.98	99.49	96.60	92.10	8.62	32.47

Figure B-3

Distribution of the Ratio of Reciprocal Brokered Deposits to Total Assets Ratio as of December 2010 (All Banks)

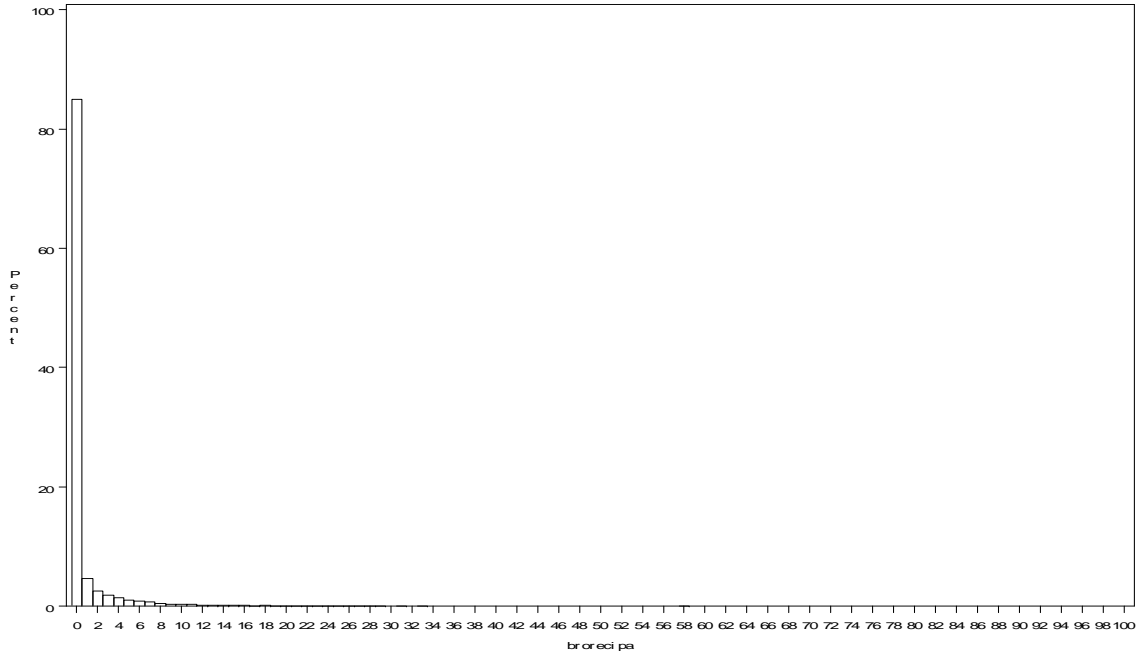


Figure B-4

Distribution of the Ratio of Reciprocal Brokered Deposits to Total Brokered Deposits as of December 2010
(Banks with Brokered Deposits)

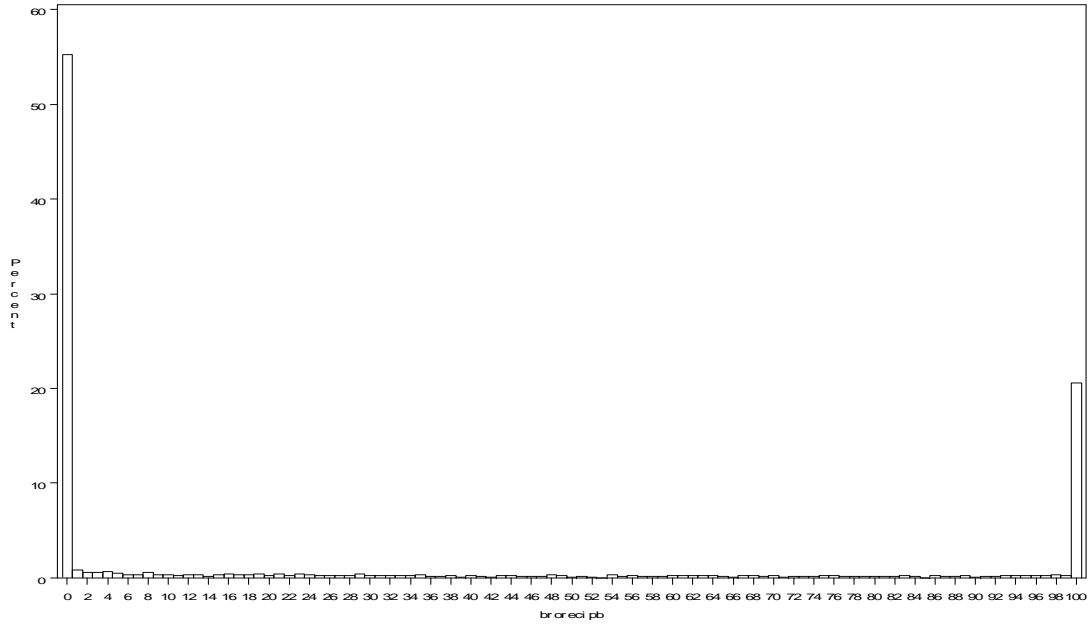
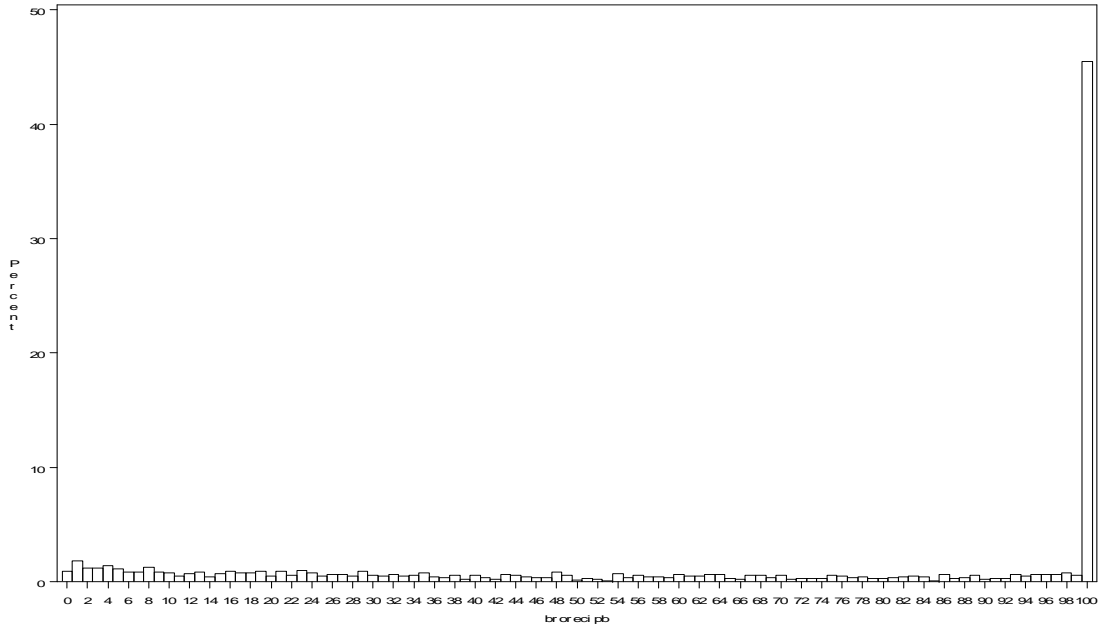


Figure B-5

Distribution of the Ratio of Reciprocal Brokered Deposits to Total Brokered Deposits as of December 2010
(Banks with Reciprocal Brokered Deposits)



Reciprocal deposit usage at failed banks

In this section, we examine the extent to which failed banks relied on reciprocal brokered deposits. Because of data limitations on reciprocal deposits, the analysis includes only banks that failed between July 2009 and April 8, 2011. During this period, 280 banks failed^[16].

Table B-11 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. For example, June 2009 is 8 quarters prior to March 2011. Between March 2011 and April 8, 2011, two banks failed. Similarly, June 2009 is 7 quarters prior to December 2010 and 28 banks failed subsequent to the December 2010.

The data suggest a number of interesting features. Somewhere between 80 and 85 percent of the failed banks used brokered deposits for at least 6 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 30 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.^[17]

Table B-11

Brokered and Reciprocal Deposits Usage in Recently Failed Banks

(1)	(2)	(3)	(4)	(5)
No. of quarters before failure	No. of observations	No. of banks with positive brokered deposits reported	No. of banks with positive non-reciprocal brokered deposits reported	No. of banks with positive reciprocal brokered deposits reported
8	2	1 (50.00%)	1 (50.00%)	1 (50.00%)
7	28	22 (78.57%)	22 (78.57%)	9 (32.14%)
6	58	49 (84.48%)	49 (84.48%)	19 (32.76%)
5	99	85 (85.86%)	82 (82.83%)	30 (30.30%)
4	144	121 (84.03%)	116 (80.56%)	39 (27.08%)
3	185	155 (83.78%)	148 (80.00%)	41 (22.16%)
2	230	189 (82.17%)	180 (78.26%)	51 (22.17%)
1	277 ^[18]	213 (76.90%)	206 (74.37%)	50 (18.05%)

Figure B-6 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 are 3.79%, 2.53%, 1.31%, 1.18%, and 0.59%, which show a decline of reciprocal deposit usage as banks approach failure.

Figure B-7 graphs the failing banks' usage of non-reciprocal brokered deposits (as a percentage of assets) prior to failure. Figure B-7 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 all weak banks do not 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 B-6

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

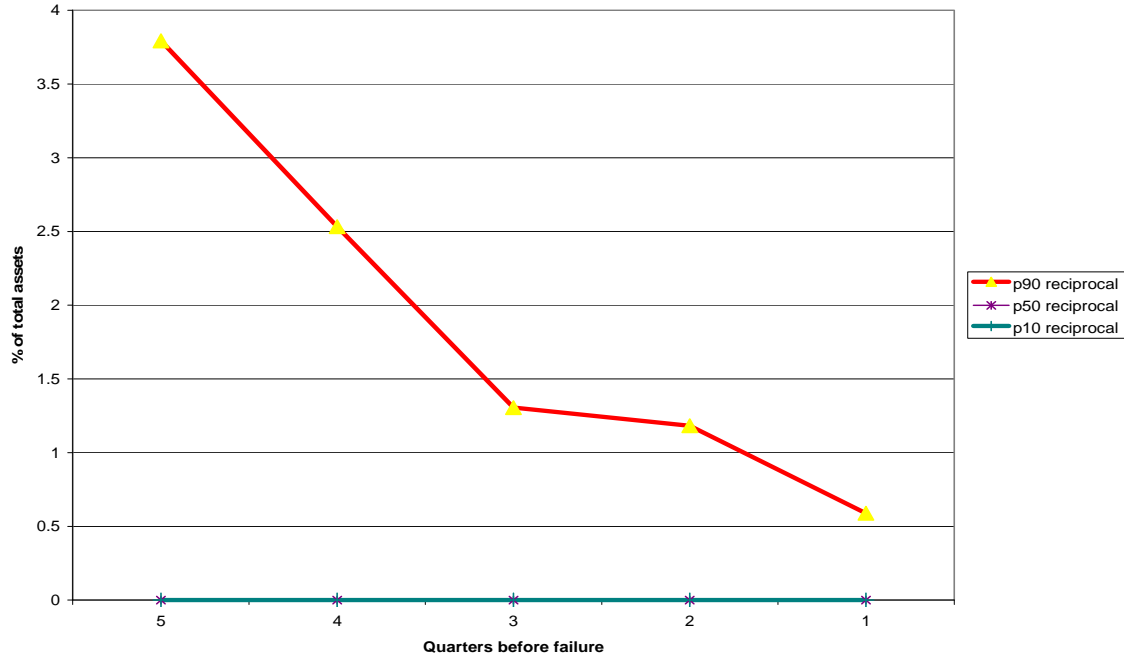
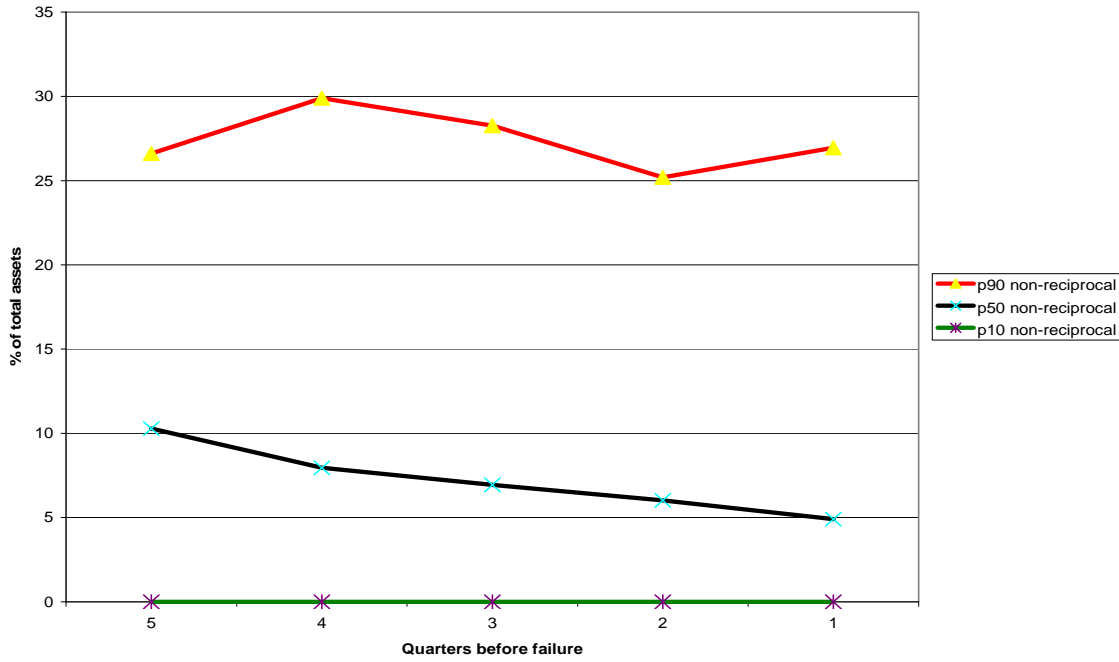


Figure B-7

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 two-year failure prediction models using June 2009 data to predict failures between July 2009 and April 2011.^[19] We estimate failure models as a function of reciprocal and non-reciprocal brokered deposits. The results are reported in Tables B-12 and B-13. Table B-12 reports the estimated coefficients of the logistic regressions and Table B-13 reports the corresponding marginal probability of failure estimates.

In the failure model specification reported in Column (1) of Tables B-12 and B-13, two funding ratios, reciprocal deposits and non-reciprocal brokered deposits are included. Table B-12 reports that the non-reciprocal brokered deposits ratio has a positive and statistically significant effect on a bank’s estimated probability of failure. Estimates reported in Table B-13 indicate that a one percent point increase in the brokered deposits ratio is associated with 2 basis point increase in bank failure probability. The marginal effect of the reciprocal deposits ratio on failure probability is statistically insignificant.

Column (1) of Table B-12 also shows that higher nonperforming loans and interest expense ratios are positively and statistically significant variables in the bank failure probability model. Table B-13, Column (1) shows that a one percentage point increase in the nonperforming loans ratio increases bank failure probability by 21 basis points. A one percent point increase in interest expense to assets ratio raises the

probability by 1.28%. In contrast, higher income before taxes is negatively correlated with bank failures; a one percentage point increase in the ratio of income before taxes to assets lowers the failure probability by 24 basis points. Banks with a CAMELS rating of 3, 4, or 5 are more likely to fail compared to CAMELS 1 or 2 rated banks. On average, CAMELS 3 rated banks have 2.44% higher probability of failure and CAMELS 4 or 5 rated banks have 10.57% higher probabilities of failure compared to 1 or 2 rated banks.

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 Tables B-12 and B-13 report 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. The marginal effect estimates reported in Table B-13 suggest that a one percentage point increase in a bank's equity ratio lowers its failure probability by 70 basis points. Holding bank equity ratios (bank leverage) constant, a higher non-reciprocal brokered deposits ratio increases bank failure probability. In terms of magnitude, a one percentage point increase in a bank's non-reciprocal brokered deposits ratio increases a bank's failure probability by 3 basis points. The marginal effect of the reciprocal deposits ratio on failure probability remains statistically insignificant.

Column (3) of Tables B-12 and B-13 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 marginal effect of the reciprocal deposits ratio remains statistically insignificant. The marginal effect of non-reciprocal deposits remains statistically significant when core deposits are held constant. This result differs from the full brokered deposit sample results (reported in an earlier section), where we found evidence of banks using brokered deposits as a substitute for core deposit funding. Moreover, the marginal effect of the core deposits ratio on bank failure probability is positive and statistically significant. Again, 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. Potentially, these results may be partly attributed to a small sample based on a period specialized to the crisis.

Column (4) of Tables B-12 and B-13 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 marginal effect of reciprocal deposits remains statistically insignificant. The marginal effect of non-reciprocal deposits is no longer statistically significant when the equity and core deposits ratios are both held constant.

Column (4) of Table B-13 show that the marginal effect estimates for the equity and core deposits ratios on bank failure probability are negative and statistically significant indicating that higher equity and core deposits both reduce the failure probability. A one percentage point increase in a bank's equity ratio is associated with 74 basis point decline in its projected failure probability, whereas a one percentage point increase in core deposits leads to a 3 basis point decline in failure probability.

There is an interpretation of these reciprocal bank failure probability model estimates that is fully consistent with the overall brokered deposit failure probability model finding. 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, whereas failed banks that used non-reciprocal brokered deposits often used them as a substitute for equity and core deposits. The regression results show that equity and core deposits both decrease a bank's probability of failure. Other things equal, non-reciprocal brokered deposits increase a bank's probability of default when they are used as a substitute for equity or core deposit funding. The results in Colum (4) of Table [B-12](#) show that this channel of causation is still strongly evident in this limited data sample. 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 suggests that, for whatever unexplained reasons, banks that used reciprocal brokered deposits in this sample period did not use them to substitute for equity or core deposit funding.

Table B-12

Two Year Failure Prediction Models for Reciprocal Deposits

	(1)	(2)	(3)	(4)
Variable	Coefficient Estimates	Coefficient Estimates	Coefficient Estimates	Coefficient Estimates
Constant	-7.662***	-3.230***	-8.833***	-1.282
Non-reciprocal brokered deposits	0.013*	0.020***	0.026***	0.002
Reciprocal deposits	-0.027	-0.008	-0.014	-0.027
Equity		-0.470***		-0.496***
Core deposits			0.016*	-0.023**
Nonperforming loans	0.115***	0.118***	0.112***	0.121***
Other real estate owned	-0.002	0.006	-0.010	0.017
Income before taxes	-0.131***	-0.110***	-0.133***	-0.116***
Interest expense	0.694***	0.411**	0.779***	0.258
CRE loans	0.005	0.017**	0.005	0.018**
C&D loans	0.045***	0.059***	0.047***	0.058***
C&I loans	-0.012	0.002	-0.012	0.002
Consumer loans	-0.048**	-0.027	-0.052**	-0.019
CAMELS 3	1.217***	0.913***	1.209***	0.907***
CAMELS 4 or 5	3.247***	2.032***	3.199***	2.038***
Pseudo R^2	0.550	0.622	0.551	0.624
Likelihood ratio	1,338***	1,513***	1,341***	1,519***
No. of observations	8,173	8,173	8,173	8,173

*** Indicates statistical significance at the 1 percent confidence level. ** Indicates statistical significance at the 5 percent confidence level. * Indicates statistical significance at the 10 percent confidence level.

Estimates use June 2009 and June 2010 data to predict failures from July 2009 to April 11, 2011.

The regressions include time fixed effects, but the coefficient estimates are not reported.

Table B-13

Two Year Failure Prediction Models – Marginal Effect on Probability of Failure

	(1)	(2)	(3)	(4)
Variable	Estimated Marginal Effect	Estimated Marginal Effect	Estimated Marginal Effect	Estimated Marginal Effect
Non-reciprocal brokered deposits	0.0002*	0.0003***	0.0005***	0.00003
Reciprocal deposits	-0.0005	-0.0001	-0.0003	-0.0004
Equity		-0.0070***		-0.0074***
Core deposits			0.0003*	-0.0003**
Nonperforming loans	0.0021***	0.0018***	0.0021***	0.0018***
Other real estate owned	-0.00004	0.0001	-0.0002	0.0003
Income before taxes	-0.0024***	-0.0016***	-0.0024***	-0.0017***
Interest expense	0.0128***	0.0062**	0.0143***	0.0039
CRE loans	0.0001	0.0003**	0.0001	0.0003**
C&D loans	0.0008***	0.0009***	0.0009***	0.0009***
C&I loans	-0.0002	0.00003	-0.0002	0.00003
Consumer loans	-0.0009**	-0.0004	-0.0009**	-0.0003
CAMELS 3	0.0244***	0.0145**	0.0241***	0.0144**
CAMELS 4 or 5	0.1057***	0.0423***	0.1028***	0.0423***

*** Indicates statistical significance at the 1 percent confidence level. ** Indicates statistical significance at the 5 percent confidence level. * Indicates statistical significance at the 10 percent confidence level.

Estimates use June 2009 and June 2010 data to predict failures from July 2009 to April 11, 2011. The regressions include time fixed effects, but the coefficient estimates are not reported.

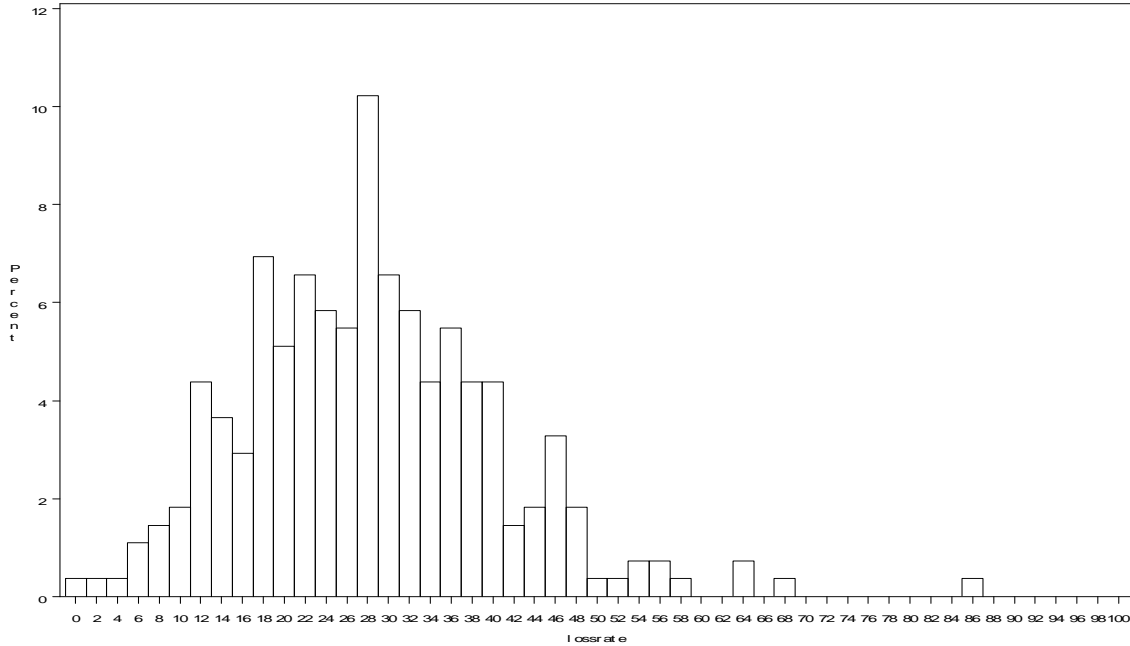
Failure loss rate models including reciprocal deposits

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 February 2011.¹²¹ Figure B-8 graphs the distribution of loss rates during the sample period. There are distributional differences in failure loss rates of recent failures (July 2009-February 2011) and those of banks that failed over the period from 1985 to February. Compared to the distribution of loss rates from the entire sample period, in the reciprocal deposit sample, there is a smaller share of failed banks with low loss rates (loss rates in the 0-10% range) and a larger share of banks with higher loss rates (loss rates in the 11-40% range).

¹²¹ Although, at the time of this analysis, the FDIC had failed bank data up to April 8, 2011, the most recently failed banks' data is not complete.

Figure B-8

Distribution of Loss Rates for Failures July 2009-February 2011



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.^[20]

Table B-14

Loss Rate Models Including Total Brokered Deposits

	(1)	(2)	(3)	(4)
Variable	Coefficient Estimate	Coefficient Estimate	Coefficient Estimate	Coefficient Estimate
Intercept	6.200*	8.688**	-3.834	2.297
Non-reciprocal brokered deposits	0.133**	0.135**	0.252***	0.208***
Reciprocal deposits	-0.117	-0.102	-0.043	-0.057
Equity		-0.801***		-0.735***
Core deposits			0.120**	0.074
Nonperforming loans	0.508***	0.370***	0.479***	0.364***
Other real estate owned	0.642***	0.580***	0.614***	0.568***
Income earned but not collected	1.802	2.050	1.655	1.938
Loan to executive officers	-0.048	-0.190	-0.054	-0.182
Bank size between \$500 mil-\$1 bil	-3.842*	-3.803**	-3.351*	-3.503*
Bank size > \$1 billion	-5.384***	-4.998**	-4.212**	-4.307**
CRE loans	0.105	0.114*	0.098	0.109*
C&D loans	0.028	0.061	0.040	0.065
C&I loans	0.176*	0.131	0.164	0.128
Consumer loans	0.994**	0.974**	0.983**	0.969**
Adjusted R^2	0.242	0.285	0.254	0.287
No. of observations	274	274	274	274

*** Indicates statistical significance at the 1 percent confidence level. ** Indicates statistical significance at the 5 percent confidence level. * Indicates statistical significance at the 10 percent confidence level. Estimates based on data from June 2009 to December 2010 to predict failure loss rates between July 2009 and February 2011. Year fixed effects are not reported.

Table B-14 reports the results of the failure loss rate model. Column (1) of Table B-14 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 B-14 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 B-14 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 B-14 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. Reciprocal deposits are statistically insignificant. An unexpected result is that, holding constant bank equity, core deposits are no longer statistically significant in reducing DIF loss rates.

The results reported in Table B-14 do not suggest that the use of reciprocal deposits have been associated with higher loss rates on average while non-reciprocal brokered deposits clearly do raise 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. A consistent pattern is observed in all four periods. Banks with reciprocal deposits make up higher percentages of banks with a 3 or 4 CAMELS rating. Banks with reciprocal deposits make up a smaller share of banks with a 5 CAMELS rating, but the share is still higher than for CAMELS 1-rated banks.

Figure B-9A charts the percentages of banks with positive reciprocal deposits for each rating category as of June 2009. For instance, 8.9% of all banks with CAMELS rating of 1 had reciprocal deposits in June 2009. A substantially higher share, 26.3% of 3 CAMELS rated banks had reciprocal deposits. In addition, 22.9% of 4 rated banks and 17.0% of 5 rated banks had reciprocal deposits. Figures B-9B-9D chart the percentages for December 2009, June 2010, and December 2010. These semi-annual distributions are not independent data as not all banks receive a new CAMELS rating within the six month period

Figure B-9A

Percentage of Banks with Reciprocal Deposits
Distribution of Reciprocal Brokered/Total Assets Ratio in December 2010

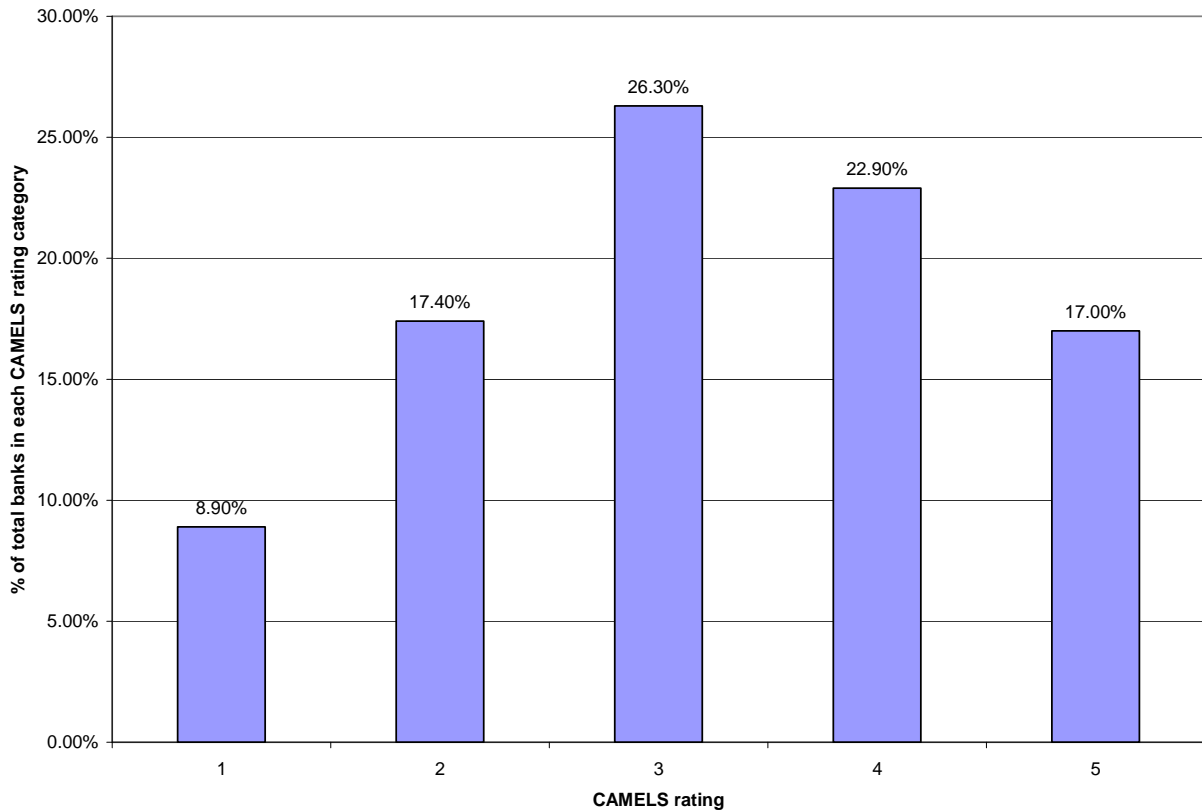


Figure B-9B

Percentage of Banks with Reciprocal Deposits
In Each CAMELS Rating Category (December 2009)

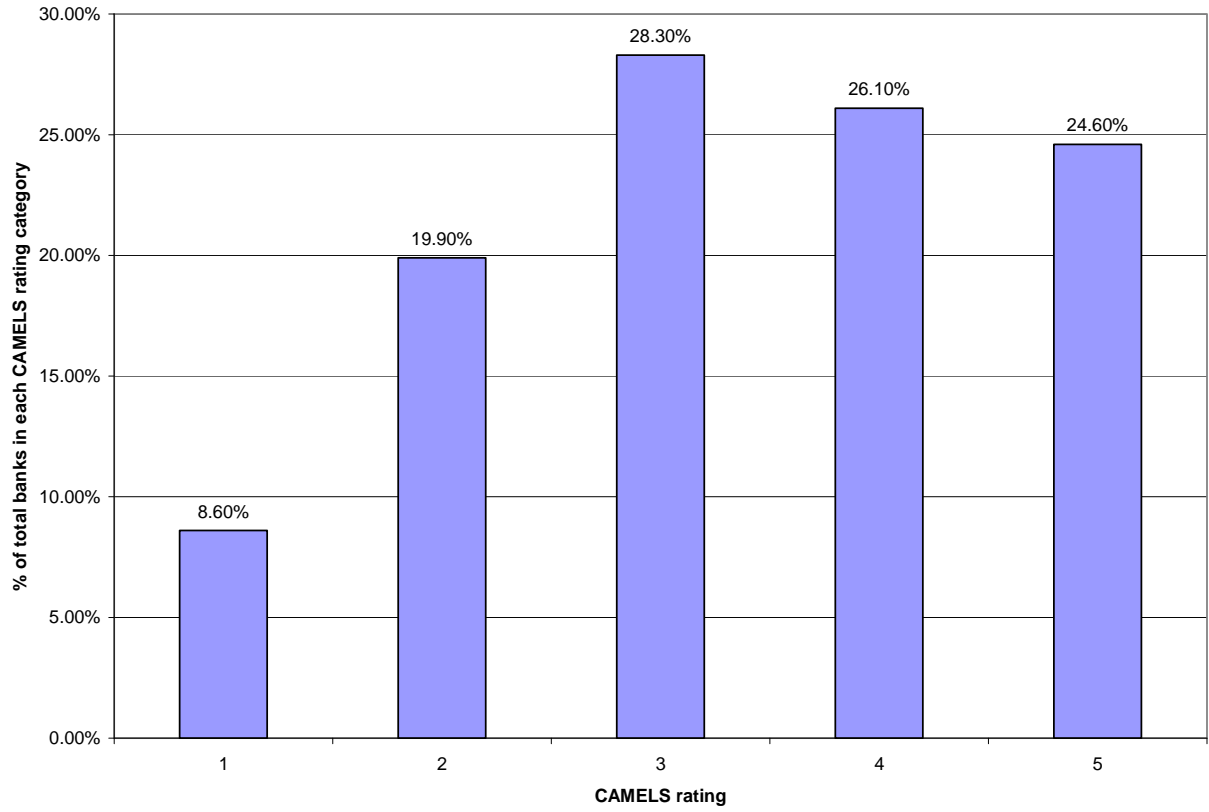


Figure B-9C

Percentage of Banks with Reciprocal Deposits
In Each CAMELS Rating Category (June 2010)

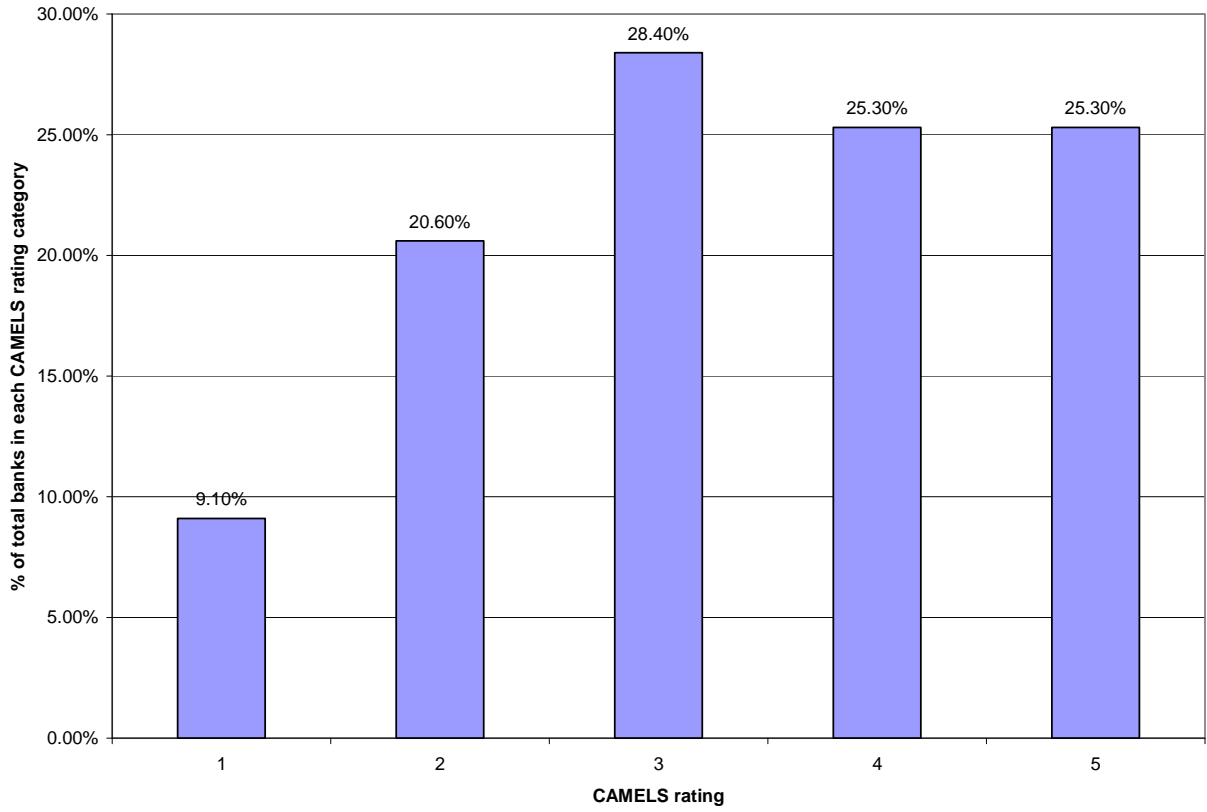
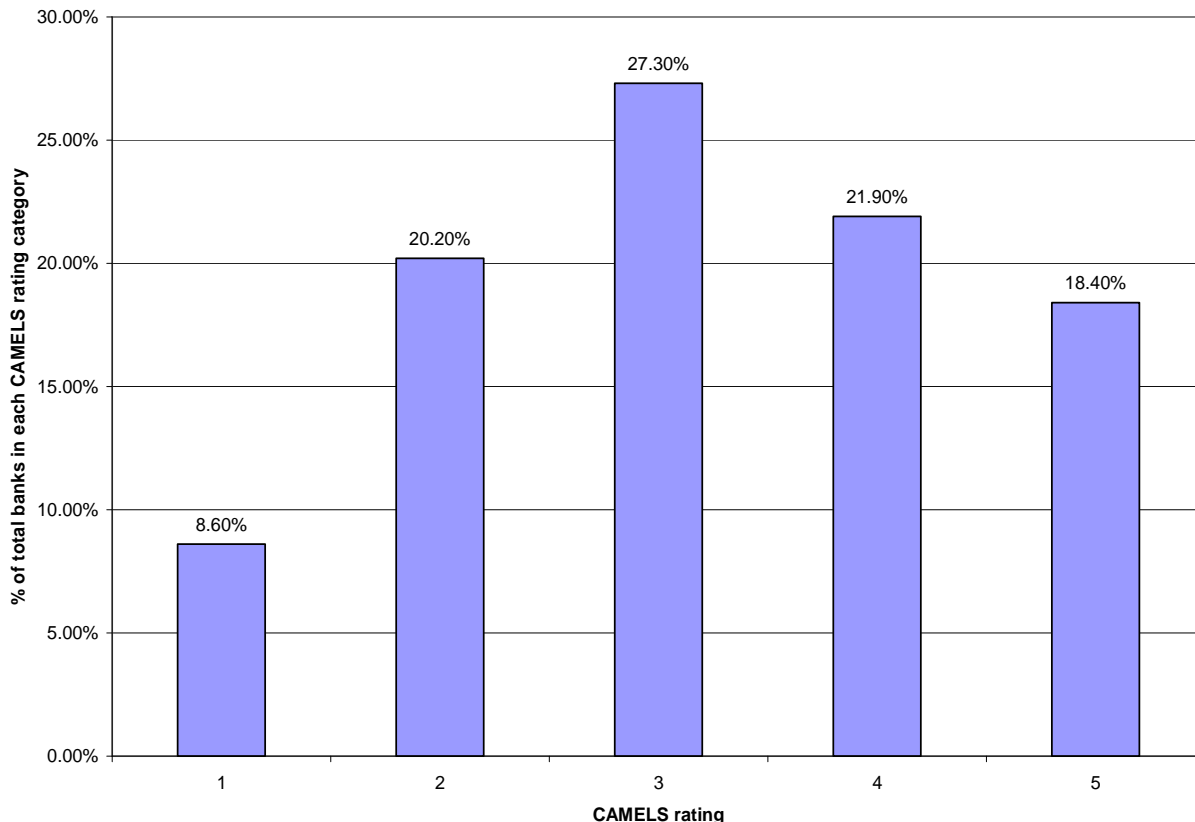


Figure B-9D

Percentage of Banks with Reciprocal Deposits
In Each CAMELS Rating Category (December 2010)



CAMELS rating prediction model

In this section, we investigate whether a bank’s use of reciprocal deposits is correlated with its future CAMELS rating assigned. We estimate one year CAMELS ratings prediction model using June 2009 and June 2010 Call Report/TFR data. Again, the sample period is limited by the data availability on reciprocal brokered deposits. June 2009 data is used to predict CAMELS ratings assigned between July 2009 and June 2010. Similarly, June 2010 data is used to predict CAMELS ratings assigned from July 2010 and June 21, 2011¹²².

The explanatory variables used in this model are the ones used in SCOR, one of FDIC’s early warning models.¹²³ The SCOR model includes equity, reserves, loans past

¹²² These are the most recent exam ratings available when this study was conducted.

¹²³ “The SCOR System of Off-Site Monitoring: Its Objectives, Functioning, and Performance”, FDIC Banking Review, 15:3, 2003, 17-31.

due 30-89 days, loans past due 90+ days, non-accruing loans, other real estate owned, liquid assets, loans and long-term securities, gross charge-offs, loan loss provision, income before taxes, and noncore funds. In this study, we replace noncore funds with various funding measures such as reciprocal deposits, non-reciprocal brokered deposits, and core deposits.

To estimate the CAMELS ratings prediction model, we use ordered logistic regression. To preserve the confidentiality of the CAMELS ratings process, we do not report the actual regression model coefficient estimates, but rather report their sign and statistical significance levels.

Table 15 reports the estimated coefficients' signs and significance of the ordered logistic model. For ease of interpretation, we convert these estimated coefficients into the marginal effects of each variable on the probability of receiving each CAMELS rating. In particular, we focus on the marginal effect estimates on the probability of receiving CAMELS rating 2 and a CAMELS rating of 4. The marginal effect estimates are discussed but not reported.

Column (1) of Table 15 shows that the estimated coefficients on reciprocal and non-reciprocal brokered deposits are positive and statistically significant in CAMELS ratings prediction model. The marginal effects estimates for reciprocal and non-reciprocal deposits to assets ratios on the probability of a CAMELS rating of 2 is negative, suggesting that these ratios lower the probability of a bank receiving a CAMELS rating of 2 in the upcoming year. Both effects are economically important. In addition, increases in reserves, loans past due 30-89 days, loans past due 90+ days, non-accruing loans, other real estate owned, loans and long-term securities to assets ratios all decrease the probability of a bank receiving a 2 rating on the onsite examination in the following year. Notably, non-accruing loans and other real estate owned to assets ratios also have large effects.

In contrast, increases in reciprocal deposits, non-reciprocal brokered deposits, reserves, loans past due 30-89 days, loans past due 90+ days, non-accruing loans, other real estate owned, and loans and longer term securities to assets ratios increase the probability of a bank receiving a rating of 4 within next year. The signs of marginal effects on the probability of a bank receiving a CAMELS rating of 4 are opposite of the signs of marginal effects on the probability of receiving a 2 rating. In other words, the financial ratios that increase the probability of a bank receiving a CAMELS rating of 2 (good rating) lower the probability of a bank receiving a 4 rating (poor rating).

Column (2) of Table 15 reports results when equity is included in addition to reciprocal deposits and non-reciprocal brokered deposits as a funding measure. The results are qualitatively similar to those reported in Column (1) of Table 15. Exceptions are loans and long-term securities and loan loss provisions to assets ratios. The loans and long-term securities ratio is no longer statistically significant while the loan loss provisions ratio becomes statistically significant in predicting a CAMELS rating assigned in the following year. An increase in the loan loss provisions ratio is associated with an increase in the probability of a bank receiving a 2 rating. Equity has a positive

statistically significant marginal effect on a bank receiving a 2 rating. Reciprocal and non-reciprocal brokered deposits ratios continue to have negative statistically significant marginal effects on the probability of a bank receiving a 2 rating. In contrast, reciprocal and non-reciprocal brokered deposits ratios have positive statistically significant marginal effects on a bank receiving a CAMELS rating of 4. These effects are also economically significant.

Column (3) of Table 15 reports results when the core deposits ratio replaces the equity ratio. The results are qualitatively similar to those reported in Columns (1) and (2). The reciprocal and non-reciprocal brokered deposits ratios have negative statistically and economically significant marginal effects on a probability of a bank receiving a CAMELS rating of 2. In contrast, reciprocal and non-reciprocal brokered deposits ratios have positive statistically significant marginal effects on a bank receiving a CAMELS rating of 4. The core deposits ratio has a statistically insignificant marginal effect.

Column (4) of Table 15 reports results when the core deposits ratio is included in addition to reciprocal deposits, non-reciprocal brokered deposits and equity ratios. The reciprocal and non-reciprocal brokered deposits ratios have a negative statistically significant marginal effect on the probability of a bank receiving a CAMELS rating of 2. In contrast, the equity and core deposits ratios have positive statistically significant marginal effects.

Again we observe opposite marginal effects for these ratios on a bank receiving a CAMELS rating of 4. The reciprocal deposits and non-reciprocal brokered deposits ratios have positive marginal effects on the probability of a 4 rating while the equity and core deposits ratios have negative marginal effects with statistical significance.

To summarize, we find that the use of reciprocal and non-reciprocal brokered deposits is associated with a lower probability of a bank receiving a good CAMELS rating and a higher probability of a poor rating. In contrast, equity is associated with a higher probability of a bank receiving a good rating and a lower probability of a poor rating. These effects are both statistically and economically significant.

Table B-15

CAMELS rating prediction models-Estimated coefficients

	(1)	(2)	(3)	(4)
Variable	Coefficient Estimates	Coefficient Estimates	Coefficient Estimates	Coefficient Estimates
Non-reciprocal brokered deposits	(+) ^{***}	(+) ^{***}	(+) ^{***}	(+) ^{***}
Reciprocal deposits	(+) ^{***}	(+) ^{***}	(+) ^{***}	(+) ^{***}
Equity		(-) ^{***}		(-) ^{***}
Core deposits			(-)	(-) ^{***}
Reserves	(+) ^{***}	(+) ^{***}	(+) ^{***}	(+) ^{***}
Loans past due 30-89 days	(+) ^{***}	(+) ^{***}	(+) ^{***}	(+) ^{***}
Loans past due 90+ days	(+) ^{***}	(+) ^{***}	(+) ^{***}	(+) ^{***}
Non-accruing loans	(+) ^{***}	(+) ^{***}	(+) ^{***}	(+) ^{***}
Other real estate owned	(+) ^{***}	(+) ^{***}	(+) ^{***}	(+) ^{***}
Liquid assets	(-) ^{***}	(-) ^{***}	(-) ^{***}	(-) ^{***}
Loans & long-term securities	(+) ^{***}	(-)	(+) ^{***}	(-)
Gross loan charge-offs	(+)	(+)	(+)	(+)
Loan loss provision	(-)	(-) ^{**}	(-)	(-) ^{***}
Income before taxes	(-) ^{***}	(-) ^{***}	(-) ^{***}	(-) ^{***}
Pseudo R^2	0.297	0.308	0.297	0.311
Likelihood ratio	9,258 ^{***}	9,608 ^{***}	9,259 ^{***}	9,690 ^{***}
No. of observations	11,096	11,096	11,096	11,096

^{***} Indicates statistical significance at the 1 percent confidence level. ^{**} Indicates statistical significance at the 5 percent confidence level. ^{*} Indicates statistical significance at the 10 percent confidence level.

¹Estimates use June 2009 and June 2010 data to predict CAMELS rating assigned from July 2009 to June 21, 2011.

² Intercepts and year fixed effect are included in the regressions but the estimates are not reported.

^[1] 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.

^[2] 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 2008, the core deposit variable reflects the prevailing definition through 2008.

^[3] 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.

^[4] The loss rate data for more recent bank failures is not yet available.

^[5] 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 2 quarters prior to failure.

^[6] By merger-adjusting the data, or summing the historical data of acquired banks and assuming they were one entity, we avoid losing information resulting from consolidations.

^[7] The regression includes time fixed effects, but the coefficient estimates are not reported in Table 1.

^[8] The omitted period, the period without an estimate of time fixed effect, is 2004-2006 and so time fixed effects estimates the unconditional probability of a 3 year period relative to the unconditional probability for 2004-2006—an interval with very few failures. The time fixed effect coefficients estimates are positive and statistically significant indicating that the unconditional probability of failure was higher in the periods 1988-1990, 1991-1993, 2000- 2002, 2003-2005, and 2009-2011 (relative to 2004-2006). The time fixed effect coefficients for 1994-1996 and 1997-1999 are positive but statistically insignificant indicating no average default rate difference relative to 2004-2006. As expected, the two crisis period (1988-1990, 2009-2011) show the highest unconditional probabilities of default.

^[9] For the estimation of marginal probability effects, see Greene, *Econometric Analysis* (1997, p. 876), Prentice-Hall.

^[10] The bank could also use brokered deposits to increase its growth into riskier assets. While there is evidence that many banks have done this in the past, we have not estimated any structural models that allow us to accurately estimate the magnitude of the additional default risks that arise from the asset side of bank's balance sheet.

^[11] The year fixed effect coefficient estimates are positive and statistically significant for 1997, 2000, 2003, and 2006 indicating that the unconditional growth rates in these years are higher compared to 1988 (the omitted year). Coefficient estimates for 1991 and 1994 are negative and statistically significant and the estimated coefficient in 2009 is statistically insignificant. Years 1988, 1991, 1994, and 2009, which are periods of banking crisis, show the smallest 3-year unconditional growth rates.

^[12] Year fixed effects estimate unconditional nonperforming loan rates relative to the 1990 level. Most year fixed effects coefficients are negative and statistically significant indicating that the unconditional nonperforming loan ratios are lower compared to 1990. Exceptions are for 1991, 2009, and 2010 which are all recessionary periods, and 1991 which is not statistically significant.

^[13] 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, 2009, and 2010 are higher compared to loss rates in 1984 (the base year). Compared to loss rates in 1984, loss rates are higher with statistical significance in 1998 (13.34% higher on average), 2007 (14.60% higher on average), 2008 (13.84% higher on average), 2009 (10.94% higher average), and 2010 (5.71% higher on average). Compared to loss rates in 1984, loss rates are substantially lower in 1985 (3.87% lower on average), 1990 (4.12% lower on average), 1991 (3.94% lower on average), 1992 (6.23% lower on average), 1993 (6.07% lower on average), 1994 (8.77% lower on average), 2000 (10.92% lower on average), and 2004 (14.92% lower on average).

^[14] 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.

^[15] Only 1,382 banks reported positive reciprocal brokered deposits out of 3769 banks that report positive brokered deposits.

^[16] While 280 banks failed between July 2009 and April 8, 2011, one bank (cert=31559) is not included in this analysis. This bank failed on August 14, 2009 but its last Call Report filed is December 2008 when reciprocal deposit information was not reported. So, the analysis is based on 279 banks.

^[17] We have not yet investigated why these banks stopped using reciprocal deposits.

^[18] Number of observations is 277 instead of 279 one quarter before failure. Two banks that failed on April 8, 2011 do not have brokered deposits data information 1 quarter prior to failure (which is March 2011) because March 2011 Call Report was not available at the time this appendix is prepared.

^[19] Recall that the brokered deposit failure probability models measured the probability of default over a 3-year horizon. There is insufficient data to estimate 3-year failure probability models for reciprocal deposits.

^[20] 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 2 quarters prior to failure.

Appendix C

Descriptive Statistics on Core and Brokered Deposits

Core deposits

Until 2010

As discussed above, 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. Under this definition, core deposits were equivalent to total domestic deposits less time deposits over \$100,000 and included insured brokered deposits. This definition was used to calculate the core deposit ratio and the noncore funding ratio on the UBPR.

Historically, reliance on core deposits, so defined, has varied by size of bank, with banks under \$1 billion in assets generally relying the most on core deposits, and banks with over \$50 billion in assets generally relying the least. At the end of first quarter 2011, core deposits represented 66 percent of total community bank (institutions with \$1 billion or less in assets) assets, but only 48 percent of assets for banks with over \$50 billion in assets. However, while the ratio of core deposits to total assets has changed very little over the last ten years for community banks in aggregate, it has risen for the largest banks in aggregate. At year-end 2000, core deposits equaled 69 percent of total community bank assets, but only 35 percent of assets for banks over \$50 billion. (See Chart C-1.)

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 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 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 C-2.)

At least since 2000, time deposits of less than \$100,000 have represented a larger share of aggregate core deposits at community banks (31 percent) than at large banks (10 percent). However, time deposits of less than \$100,000 as a share of core deposits peaked in 2009 and has declined since then for all bank size groups. (See Chart C-3.)

Since 2011

As discussed above, 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 under \$250,000. 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 their fully insured brokered deposits were in almost all cases less than their time deposits between \$100,000 and \$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. Chart C-9 shows the core deposits under the new definition as a percentage of core deposits under the definition before March 31, 2011.

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. Before 2010, insured brokered deposits were those in accounts under \$100,000. Beginning with the March 31, 2010, Call Reports and TFRs, banks also reported insured brokered deposits in accounts between \$100,000 and \$250,000.¹²⁴ Insured depository institutions also began reporting total reciprocal brokered deposits in their June 30, 2009, Call Reports and TFRs.

At the end of first quarter 2011, brokered deposits totaled \$562.3 billion, just 73 percent of their peak level in the first quarter of 2009. As of that date, brokered deposits made up 7 percent of industry domestic deposits, in contrast to first quarter 2009, when brokered deposits made up more than 10 percent of industry domestic deposits.

Brokered Deposits Held by Insured Depository Banks as of March 31, 2011

Size Group	Number of Banks	Total Brokered Deposits (\$ Billions)	Share of Total Brokered Deposits (%)	Share of Domestic Deposits (%)
Under \$1 Billion	6,904	47.1	8.4%	14.9%
\$1 - \$10 Billion	563	104.7	18.6%	13.7%
\$10 - \$50 Billion	71	122.7	21.8%	12.0%
Over \$50 Billion	36	287.8	51.2%	59.4%
All Banks	7,574	562.3		

Fewer than half of all FDIC-insured banks (3,215 banks, 42.4 percent) reported brokered deposits on their March 31, 2011 Call Reports and TFRs. Of these, only 798 banks reported that brokered deposits accounted for more than 10 percent of their domestic deposits. However, for a few large consumer specialty banks, industrial loan companies, and credit card lenders, brokered deposits made up virtually all of their

¹²⁴ Certain brokered retirement accounts are included in insured brokered deposits.

domestic deposits. At the end of first quarter 2011, these banks held a quarter of all brokered deposits.

Brokered deposits are typically less important for community banks than for banks with assets over \$10 billion. At the end of first quarter 2011, banks with assets over \$50 billion held more than half of total brokered deposits, while community banks held less than one-tenth of these deposits. In aggregate, banks with assets between \$10 billion and \$50 billion reported brokered deposits equal to 12.8 percent of their domestic deposits as of March 31, 2011, while banks with assets under \$1 billion reported brokered deposits equal to just 4 percent of domestic deposits. (See Chart C-4.)

At the end of first quarter 2011, insured brokered deposits made up almost 84 percent of total brokered deposits. Most insured brokered deposits – 69.9 percent – were in accounts under \$100,000. Insured brokered deposits at the largest banks, those with assets over \$50 billion, made up only 76 percent of total brokered deposits. In contrast, insured brokered deposits made up over 90 percent of brokered deposits for banks with assets less than \$50 billion. (See Chart C-5.)

Non-time brokered deposits

Unlike other brokered deposits, which tend to be time deposits, the brokered deposits that are acquired through sweep transactions involving cash management accounts at stock brokerages are savings deposits, since the account owners' access to their money cannot be restricted. Banks do not report these sweep accounts separately. However, at the end of first quarter 2011, brokered deposits at 18 large banks, most of which have stock brokerage affiliates, were greater than total time deposits. As of that date, in aggregate, these banks reported almost \$229 billion in brokered deposits, or almost 41 percent of all brokered deposits at insured banks. They reported only \$38.7 billion in time deposits, suggesting that at least \$190 billion of their brokered deposits are in savings accounts. This amount represents almost a third of all reported brokered deposits. Thus, between 30 and 40 percent of all reported brokered deposits consist of these “brokerage sweep” accounts. (See Chart C-6.)

Reciprocal brokered deposits

At the end of first quarter 2011, reciprocal brokered deposits constituted only 5.1 percent of total brokered deposits. In aggregate, reciprocal deposits constituted 26 percent of all brokered deposits at community banks with less than \$1 billion in assets, but only 3 percent of all brokered deposits at banks with assets over \$1 billion. The reciprocal deposit share of community banks' total brokered deposits has increased every quarter since second quarter 2009, when these deposits made up 16 percent of all community bank brokered deposits. At the end of first quarter 2011, reciprocal brokered deposits made up 51 percent of all brokered deposits at the 1,206 community banks that reported reciprocal brokered deposits. (See Chart C-7.)

Brokered deposits at banks that failed between 2007 and 2010

Failing banks are more likely to have brokered deposits than other banks, and tend to rely on brokered deposits for a greater share of their overall funding.

For the 325 insured depository banks that failed between 2007 and 2010, between 58 percent and 68 percent reported brokered deposits during the last 13 quarters before failure. For all insured depository institutions, between 38 percent and 46 percent reported brokered deposits during this period. (See Chart C-8.)

At failed banks that reported brokered deposits, average brokered deposits as a percentage of average total assets ranged from 8.2 percent to 11.9 percent in the last 13 quarters before they failed. For all insured depository institutions reporting brokered deposits during this period, average brokered deposits ranged from 4.9 percent to 6.7 percent of assets. Excluding banks affiliated with stock brokerages, average brokered deposits ranged from just 3.8 percent to 4.9 percent.

Chart C-1

“Core” Deposits as a Percentage of Total Assets, 2000 – 2011
(Core deposits include insured brokered deposits, as defined in UBPR prior to 2011)

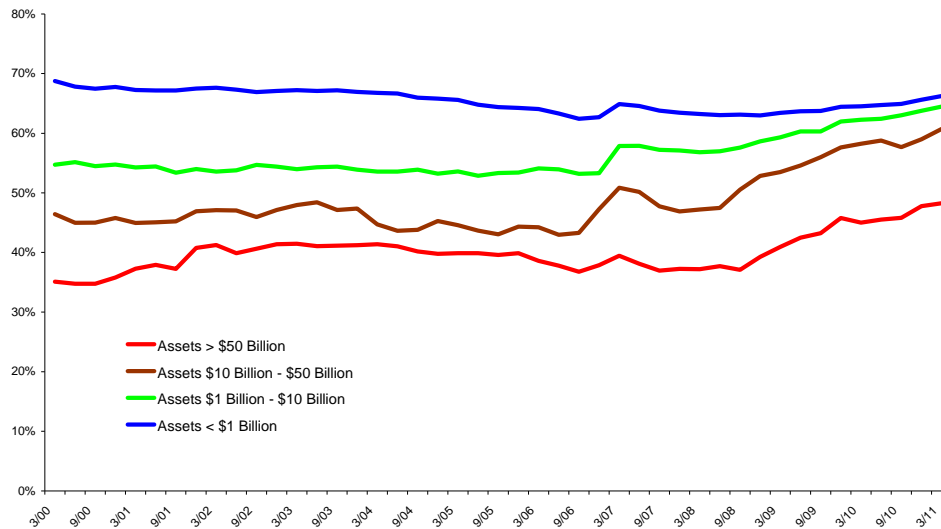


Chart C-2

Estimated Insured Deposits as a Share of “Core” Deposits, 2000 – 2011
 (Core deposits include insured brokered deposits, as defined in UBPR prior to 2011)

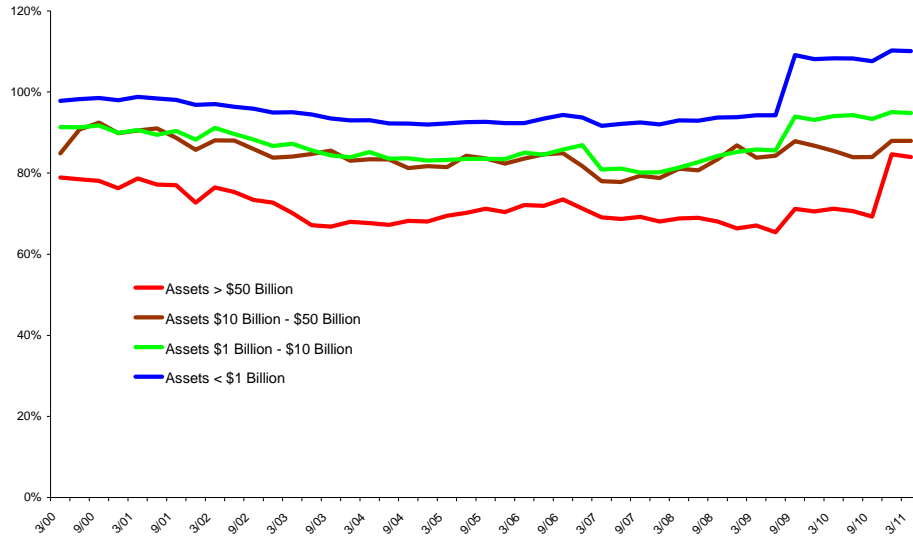


Chart C-3

Small Time Deposits as a Share of Total “Core” Deposits, 2000 – 2011
 (Core deposits include insured brokered deposits, as defined in UBPR prior to 2011)

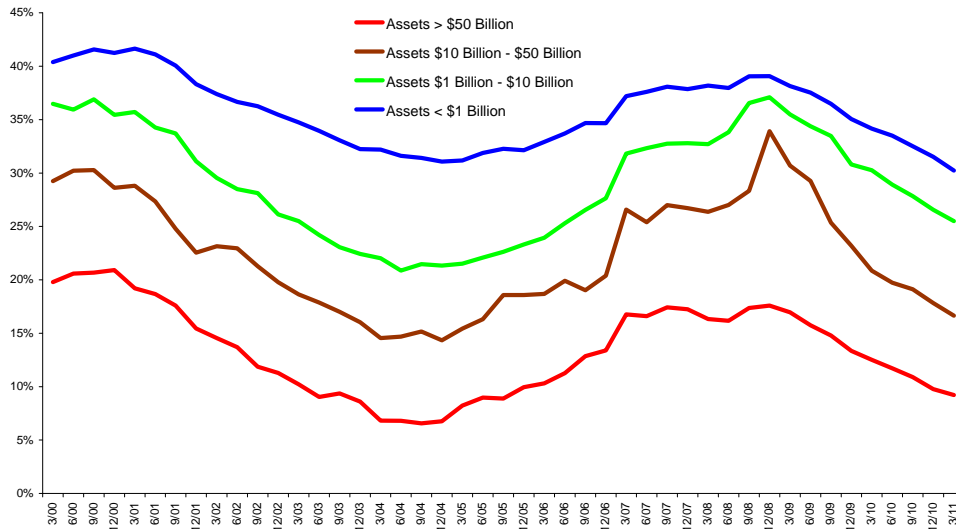


Chart C-4

Brokered Deposits as a Share of Domestic Deposits, 2000 – 2011

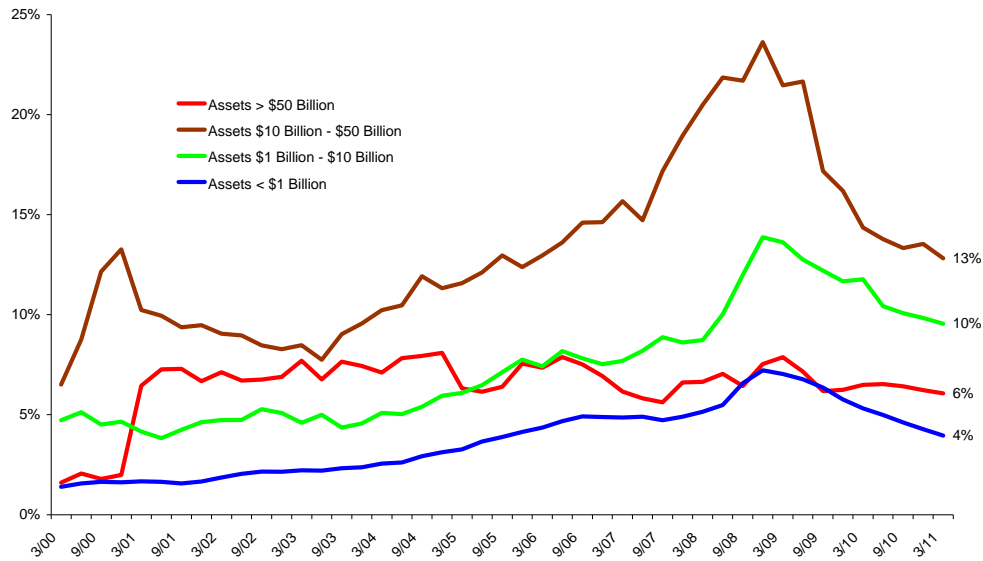


Chart C-5

Insured Brokered Deposit Share of All Brokered Deposits, 2000 – 2011

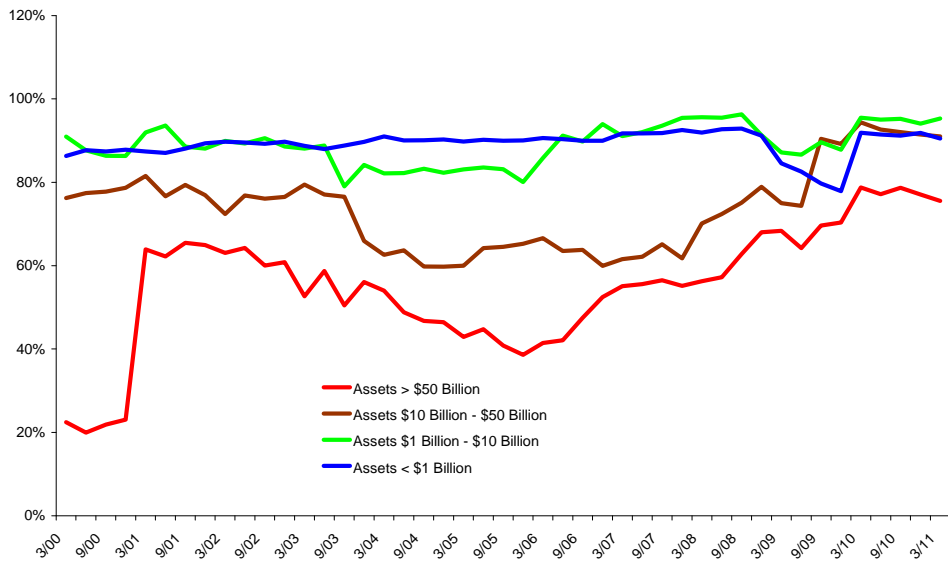


Chart C-6

Brokered Deposits at Banks Where Brokered Deposits Exceed Total Time Deposits, 2000 – 2011

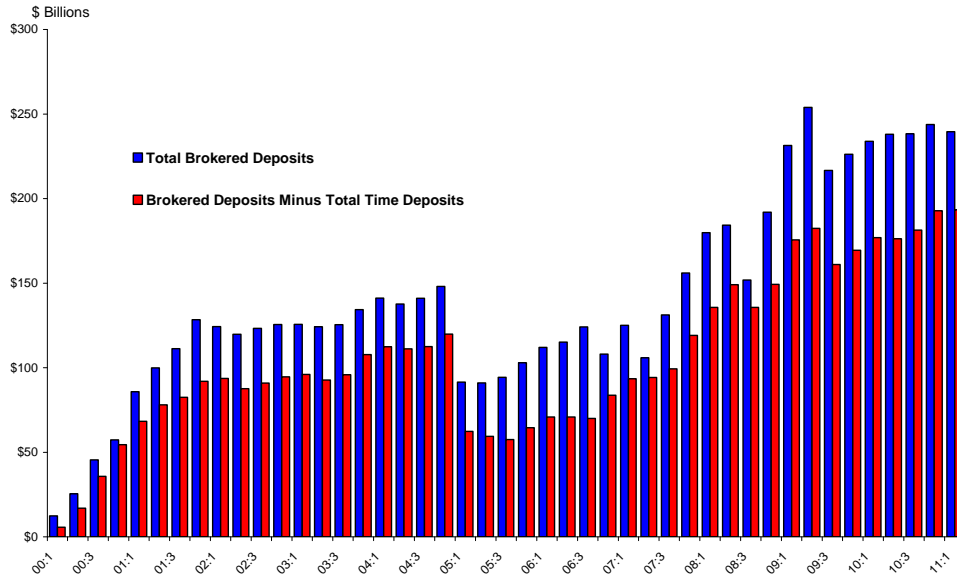


Chart C-7

Reciprocal Brokered Deposits as a Share of Total Brokered Deposits

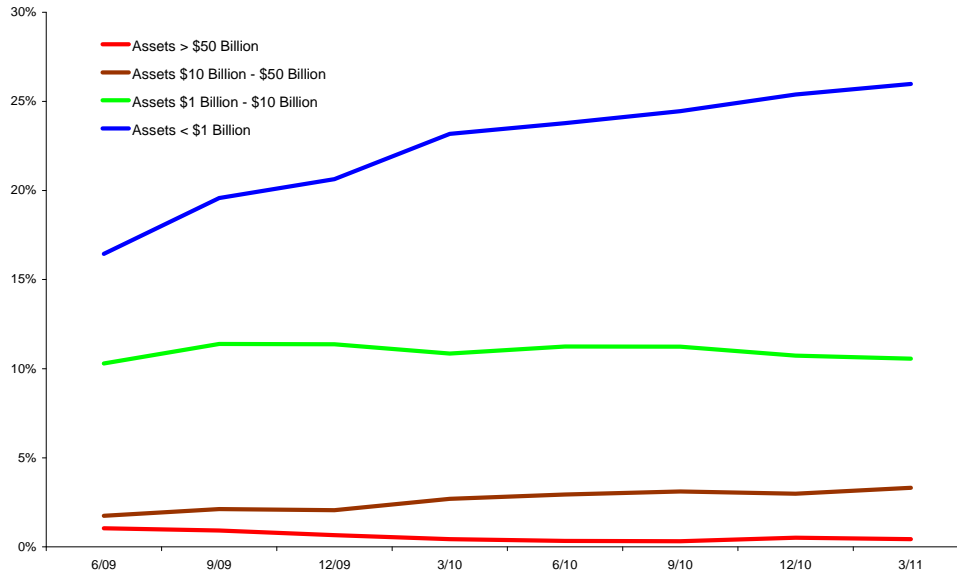


Chart C-8

Percentage of Failed Banks Reporting Brokered Deposits
In the Quarters before Failure

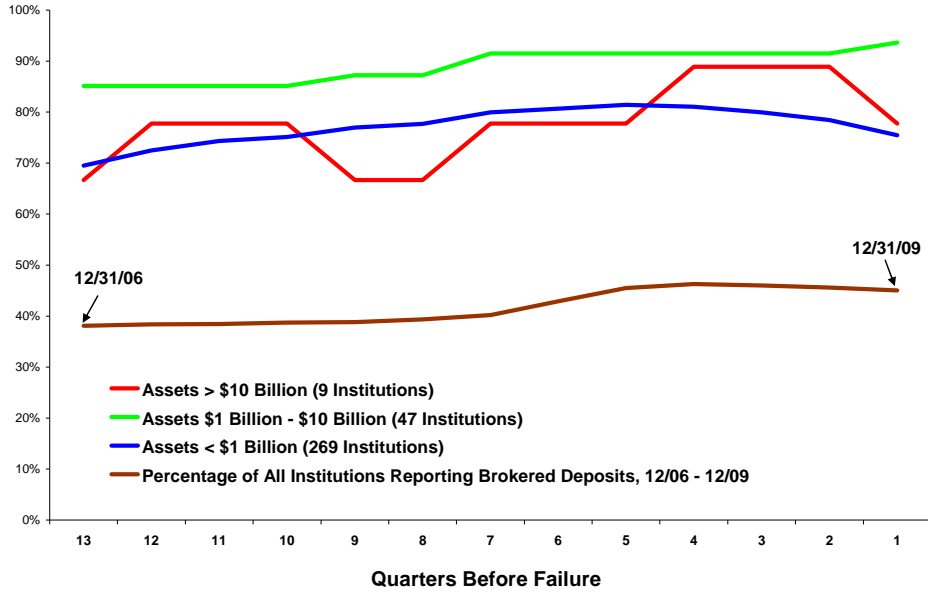


Chart C-9

Core Deposits Based on New Definition
As a Percentage of Core Deposits Based on Old Definition
March 31, 2011

