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Lending to Trouble Thrifts: The Case of FHL Banks

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by

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Introduction

The failure rate for thrifts in the second half of the 1980s and early 1990s was substantially higher than in earlier decades.[1] For example, the number of thrift failures averaged about 32 per year between 1980 and 1985, compared with about 136 per year between 1986 and 1992.[2] The Federal Home Loan Bank (FHLBank) System was the primary federal regulator of thrifts and was responsible for the supervision and examination of most of these failing institutions. The FHLBank System also lent funds to thrifts; it became a reliable source of nondeposit funds to support the lending activities of safe and sound institutions. According to Bodfish and Theobald (1938) and as discussed in Barth and Regalia (1988), the FHLBank System lending program was not intended to "bail out" failing thrifts. Yet, many failed thrifts borrowed from the FHLBank System during the 1980s, and some borrowed a substantial amount several years prior to their closure. For example, of the 205 thrifts that were resolved (that is, liquidated or merged with regulatory assistance) in 1988, the year before Congress passed the Financial Institutions Reform, Recovery and Enforcement Act (FIRREA), 76 percent borrowed from their FHLBank three years before closure with borrowings, in some cases, as high as 35 percent of total assets. In their last year of operation, some of these thrifts financed about 72 percent of their total assets with FHLBank loans. By contrast, only 40 percent of their solvent counterparts borrowed from FHLBanks at the end of 1988, financing, in some cases, only 46 percent of total assets.

At the time of their closure, the estimated present-value cost to the now defunct Federal Savings and Loan Insurance Corporation (FSLIC) to resolve the 205 thrifts exceeded $32 billion, suggesting that these institutions were in serious financial trouble. Because of their poor financial condition, some of these thrifts could not provide adequate collateral (that is, eligible assets) to

secure their FHLBank loans.[3] The FSLIC issued guarantees for some of the more poorly capitalized thrifts to secure the funds lent by FHLBanks (see Garcia and Plautz, 1988).[4] The question then arises whether FHLBank lending to financially distressed thrifts increased FSLIC losses during the 1980s. Because FHLBanks' claim on thrift assets was senior to that of the FSLIC, lending to troubled thrifts increased the risk of loss to the FSLIC and potentially added to the cost of thrift failure resolutions. As a result, taxpayers and policymakers have an interest in understanding the economic role of the FHLBank System in the thrift debacle of the 1980s and how a given government regulatory structure can have unintended consequences.

During the thrift debacle of the 1980s, FHLBank advances to individual thrifts varied considerably in terms of net worth and borrowings relative to the thrifts' total assets. This variation makes it possible to test hypotheses about the borrowing of financially distressed thrifts. One hypothesis is that FHLBanks made credit available to the most troubled thritfs, i.e., those with the largest gap between their regulatory accounting principle (RAP) capital and generally accepted accounting principle (GAAP) capital. RAP allowed thrifts to count, as part of capital, net worth certificates issued by the Federal Home Loan Bank Board (FHLBB) to increase recorded, though not economic, net worth, appraised equity capital, and qualifying subordinated debentures, and to defer losses on the sale of assets that bear below-market interest rates.[5] These items capture the extent to which thrift regulators allowed thrifts to "invent" assets that artificially inflated their capital. Thrifts with most of their reported capital in these forms might not be able to raise noninsured sources of funds in the private sector. FHLBank lending to the financially distressed thrifts with the largest gap between RAP and GAAP capital would have given them time to attempt to recover, but also it would have given them time to "gamble for resurrection"

by making large volumes of higher-risk, potentially high-profit investments. If the investments made good, the thrift would reap the profits, but if the investments soured and the thrift went broke, the FSLIC and not the thrift's owners would be liable for the losses. This incentive to gamble for resurrection is strongest when there is little equity left. Thus, it is likely that the magnitude and cost to taxpayers of the 1980s thrift debacle were increased by regulatory forbearance policies, including FHLBanks' provision of aid to financially distressed firms.[6]

In addition to examining whether financially distressed thrifts made greater use of FHLBank advances than financially sound thrifts, we consider whether the pattern of borrowings differed by FHLBank districts. Because of the collapse of the oil industry and its associated effect on real estate prices in the early 1980s, many thrift institutions in the ninth district of the FHLBank System (Arkansas, Louisiana, Mississippi, New Mexico, and Texas) became insolvent.[7] In some states, congressional pressure persuaded thrift regulators to grant forbearance and increased access to the FHLBank advance program to aid poorly capitalized institutions.

The article is organized into six sections. The first section provides information on the FHLBank System, both to describe the regulatory structure of the thrift industry and to document the evolution of this system during the last several decades. Section two examines the financial condition and characteristics of FHLBanks. Section three discusses the FHLBank membership requirements and how the mix of members have changed over time. Section four explains the economic role of FHLBank advances and reports on the extent to which advances were used by financially troubled thrifts. Section five looks at the relationship between FHLBank advances and several measures of a thrift financial condition. Section six concludes.

Structure of the FHLBank System

The financial distress that thrifts experienced and the accompanying disruption in the mortgage market during the Great Depression caused Congress to pass several bills to stablize the savings and home financing industry. First, Congress passed the Federal Home Loan Act of 1932, creating the FHLBank System. This system, designed along the organizational structure of the Federal Reserve System, consists of 12 Federal Home Loan Banks, each serving a geographically distinct district. In addition, the Home Owner's Loan Act of 1933 created the Federal Home Loan Bank Board as a federal government agency to have supervisory responsibility over the FHLBanks.

The main purposes of the FHLBank System were to provide liquidity to thrifts, thereby facilitating home ownership through greater availability of mortgages, and to be the primary federal regulator of thrifts. Similar to district Federal Reserve Banks, FHLBanks are wholly owned by member institutions. Prior to 1989, members included all federal savings and loan associations and state chartered savings and loans that voluntarily chose and qualified to be members.[8] Each member institution is required to hold an equity stake in its district FHLBank.

In 1934, Congress enacted the National Housing Act which established the Federal Savings and Loan Insurance Corporation, within the FHLBB, to promote confidence in the thrift industry through deposit (or share capital) insurance at thrifts. The initial deposit insurance was $5,000 per account, similar to that at commercial banks. This amount has been increased periodically, with the last change to $100,000 occurring in 1980.

This supervisory and regulatory structure remained in place until the late 1980s when the deterioration in the financial condition of the S&L industry caused Congress to restructure the

way the thrift industry is regulated and insured and improve supervisory control. The Financial Institutions Reform, Recovery and Enforcement Act, which was signed into law by President Bush on August 9, 1989. It abolished both the FSLIC and the FHLBB. In their place, the act established the Federal Housing Finance Board (FHFB) as an independent agency, responsible for regulating and supervising the 12 regional FHLBanks, relinquished control of the insurance functions to the Federal Deposit Insurance Corporation, and transformed the supervisory and regulatory functions of the FHLBB and the FHLBanks, over thrifts, to a new Office of Thrift Supervision (OTS), located in the Department of the Treasury.

The FHFB consists of a five-member board, including the Secretary of Housing and Urban Development.[9] The Board is funded through assessments made on the 12 FHLBanks. The FHFB ensures that the FHLBanks carry out their housing finance mission, remain adequately capitalized, and are able to raise funds in the capital market. In addition, the FHFB must ensure that the FHLBanks operate in a safe and sound manner by following regulations governing their operations.

Financial condition of FHLBanks

At the end of 1996, FHLBanks' total assets exceeded $292 billion, up 61% from the level at the end of 1989 (see table 1). The financial position of FHLBanks was precarious at best. The FHLBanks are capitalized through the retention of earnings and the purchase of stock by member institutions. As of year-end 1996, the FHLBanks, on a consolidated basis, had a book capital (including par value of common stock and retained earnings) to total on balance sheet asset ratio of 5.5 percent.[10] This ratio is slightly higher than the leverage ratio of 5 percent for depository institutions to be classified as well-capitalized under Prompt Corrective Action provisions of the

Federal Deposit Insurance Corporation Improvement Act of 1991. Because all members of the FHLBanks, except federally chartered thrifts, can withdraw from membership, the permanence of this capital basis is questionable at best. While a member's capital stock cannot be withdrawn immediately upon demand and an FHLBank cannot redeem stock if the redemption would cause the FHLBank to be undercapitalized, the temporary nature of the capital base could be of concern if the FHLBanks experience losses or membership becomes unattractive.

Traditionally, FHLBanks held a portfolio of investment securities to earn interest income on proceeds from prepaid loans from member institutions, to invest members' overnight deposits, and have a ready source of liquidity to satisfy unanticipated demands for advances by member institutions. The type of investment securities that FHLBanks can hold is determined by their supervisory agency, and includes, among other things, obligations of the U.S. Treasury, Federal National Mortgage Association, and Government National Mortgage Association; mortgages, obligations, or other securities sold by Federal Home Loan Mortgage Corporation; and instruments a fiduciary or trust fund may invest under the laws of the state in which the FHLBank is located. Holdings of investment securities grew about 270% between the end of 1989 and the end of 1996. The mix in the investment portfolio of FHLBanks has shifted away from U.S. Treasury securities, federal funds, and repurchase agreements to government agency securities, commercial paper and mortgage-backed securities (see table 2). Since the end of 1989, FHLBanks have increased their investments in mortgage-backed securities from $2 billion to $46 billion at the end of 1996. The rapid growth in investment securities and the shift in the mix of the investment portfolio are attributed to the need to ensure sufficient earnings to cover FHLBank obligations mandated by FIRREA and to provide sufficient dividends to attract new members,

particularly commercial banks.[11] The shift in the portfolio mix reflects a move toward riskier, higher yielding investments.

In addition to capital, funding for the FHLBank also comes from debt issued as consolidated obligations of the 12 FHLBanks and consists of bonds and discount notes that are limited by statute to an amount not to exceed 20 times the total paid-in-capital stock and legal reserves of all FHLBanks. Although FHLBank System debt does not carry an explicit federal government guarantee, because the FHLBanks do operate under a federal charter and government supervision there is a perception of an implicit government guarantee. FHLBank debt carries an AAA-credit rating and coupon income is exempt from most state and local income taxes.

FHLBanks meet their funding needs through the issuance of both fixed-rate and variable-rate instruments, many of which contain complex coupon payment terms and callable features. Table 3 provides a breakdown of selected bonds issued by FHLBanks during 1993 and 1996. Typically, FHLBanks issue debt and then swap out the proceeds at a funding rate below the London Interbank Offering Rate (LIBOR). As the use of derivatives by FHLBanks increased, so has the complexity of their consolidated debt obligations. The purpose for engaging in the varied instruments has been twofold. FHLBanks have increased their use of derivatives that serve as hedges of their debt obligations, advance products, investments, member deposits and asset/liability management (see table 4). There was a dramatic rise in the notional value of derivatives held by the district banks from roughly $7 billion (or, 70% of System's total book capital) in 1985 to $225 billion (or, 1406% of System's capital) in 1996. The majority of these derivatives are intended to reduce FHLBanks' exposure to interest-rate risk. Second, FHLBanks have been very active in providing interest-rate swap services to their member institutions. As an

interest-rate swap dealer, an FHLBank maintains a portfolio of customized swap contracts and manage the interest-rate risk of this portfolio using interest-rate futures contracts (see, Brewer, Minton, and Moser, 1998). Thus, FHLBanks participate in derivative markets as dealers acting as counterparties to intermediate the hedging requirements of their member institutions and to hedge their exposure to interest-rate risk.

FHLBank membership

Currently, a thrift member of the FHLBank System must purchase stock in its district FHLBank equal to the greater of 1% of the aggregate unpaid principal balance of their home mortgage loans, home purchase contracts and similar obligations; .30% of total assets; or 5% of their outstanding FHLBank advances. Member thrifts that have at least 65% of their assets in residential mortgages or related securities may take advances from FHLBanks as high as 20 times their FHLBank capital stock ownership.[12] For members with less than 65% of their assets in such instruments, their available outstanding advances would be smaller.

In the late 1980s, membership in the FHLBank System was rapidly declining as a result of both thrift closures and consolidations in the thrift industry. At the same time, the distinction between thrifts and commercial banks was narrowing. Many commercial banks were increasing their presence in the residential real estate market. In recognition of the increased role of commercial banks in the residential real estate market, Congress, in FIRREA, extended FHLBank membership to commercial banks.[13] A commercial bank can qualify to become members of the FHLBank System if it has at least 10% of its assets in residential mortgage loans or related securities. Advances to these members, however, are capped at 30% of all advances.

The number of commercial banks joining the FHLBank System was slow at first but by the

mid-1990s membership has soared (see table 5). At year-end 1990, 62 of 2,852 FHLBank members, or 2.2 percent, were commercial banks. In 1993, the number of commercial banks surpassed the number of thrifts for the first time. By the end of 1996, the system membership was at an all time high of 6,146, with commercial banks surpassing thrifts by a margin of 4,075 to 1,874. Reasons sighted for the dramatic growth in membership include the wide variety of financial credit choices, the generally lower cost of borrowing from FHLBanks, the attractive dividend yield on FHLBank stock, the liquidity provided by the FHLBanks, and the preference by some commercial banks to engage in correspondent banking services (e.g., check processing, securities safekeeping, securities trading, automatic clearing house, overnight investment, and electronic funds transfer) with a government agency versus a competing commercial bank.[14] While, some commercial banks have become members of the FHLBank System to take advantage of the corresponding bank services, most commercial banks recognize the importance of the FHLBank System as a source of nondeposit funds. According to Michael Wilson, director of the Finance Board Office of Policy Research, "[a] bank will not go to the Fed unless it absolutely has to, but the FHLBanks are lenders of first resort. If a member finds the [system] a better source of funds than retail deposits, they can borrow money with no questions asked. A commercial bank can factor that into its liability funding strategy. It can't look at the Fed the same way." (Bush, November 1993)

FHLBank advances support the home mortgage market

Historically, it was believed that thrifts needed the liquidity provided by the FHLBank advance program because of the maturity mismatch between their liabilities and assets. A typical thrift makes long-term, fixed rate mortgages, financed by short-term, effectively variable rate

deposits, which can make for challenging financial management. A sudden increase in market rates, for example, can create several difficulties for a thrift institution. Because incoming mortgage interest income is based on fixed-rate mortgage loans, it cannot re-price such mortgages at the higher market rates of interest. Due to the long-term nature of such assets, the thrift could miss out for several years on the higher market interest rates that an institution with a shorter term asset structure would enjoy. Furthermore, if the increase in market interest rates is sharp and unexpected and the thrift is not able to increase its deposit rates quickly, it could experience substantial deposit outflows as its customers transfer their funds into instruments with more attractive returns. Such a deposit outflow would make it difficult to fund new, higher-yielding mortgage loans. Even if the thrift reacts to the increased market interest rate by offering competitive rates to its depositors, it then has to pay out more than it is receiving in income from older mortgage loans. The advances provided by FHLBanks can ease some of these difficulties by supporting the lending activities of the thrift industry. The statement of policy on advances in the Code of Federal Regulation indicates that:

> "[t]he primary credit mission of the Federal Home Loan Banks is to provide a reliable source of credit for member institutions...Advances generally shall be made to creditworthy members upon application for any sound business purpose in which members are authorized to engage. Such purposes include, but are not limited to, making residential mortgage, consumer, and commercial loans, covering savings withdrawals, accommodating seasonal cash needs, restructuring liabilities, and maintaining adequate liquidity." (U.S. CFR 1987, 531.1)

By providing member institutions with access to advances of differing maturities, varying from overnight to as long as 20 years (see table 6), FHLBanks can stabilize the flow of residential mortgage loans issued by thrifts during periods of deposit outflows. The availability of FHLBank advances enhances the liquidity of mortgages and mortgage-related assets such as mortgage-

backed securities. Since thrifts and other depository institutions face fluctuations in their deposits, they need to hold a sufficient amount of liquid assets. Mortgage loans and other longer-term assets are illiquid. But these assets can be used as collateral to borrow from FHLBanks. The availability of FHLBank loans may reduce the need to carry liquid assets. This, in turn, allows member institutions to hold a more illiquid, and presumably a more profitable, asset portfolio than otherwise. Furthermore, the FHLBank System advances are a means to move surplus funds from regions of the country with excess funds to other areas of the country where demand for mortgage financing exceeded the local institution's supply of funds.

Figure 1 shows the trend in advances over the 1980-1996 period and table 7 reports on the FHLBank lending activity in selected years from 1960-1989. As figure 1 indicates, advances to FHLBank members rose sharply during the early 1980s, reaching a peak in 1988, declined during the late 1980s and early 1990s, and have steadily risen each year after 1991. Thrifts still represent the largest percentage of advances but advances to non-thrifts (primarily commercial banks) rose to $39 billion (24% of total advances) at the end of 1996 from $2 billion (2.5% of total advances) at the end of 1991. FHLBanks' advances offer member institutions several advantages over other sources of funds. First, advances are immediately available. Second, member institutions have a fair amount of flexibility in choosing the maturity and volume of their advances. Third, advances do not carry the withdrawal risk associated with deposits. Fourth, unlike deposits, no reserve requirements or deposit insurance premiums are associated with advances. The results of a recent study of the FHLBank loan program indicated that in addition to the traditional use of advances as a source of liquidity, advances are a particularly attractive source of funds for poorly capitalized institutions. Using data for the fourth quarter of 1986,

Garcia and Plautz (1988) show that deposit outflows are offset by increased advances. This study also found that advances to low-capital firms nationwide and in states (for example, California, Louisiana, Oklahoma, Oregon, and Texas) with the largest number of troubled thrifts rose more quickly than the national average.

Each of the 12 FHLBanks has the authority to set rates on advances and to establish other products that satisfy the needs of its district. Depending on regional economic factors, market conditions and funding needs, loan products and risk management services are established to address the needs of local member institutions.

In the past, most loans to members were standard, fixed-rate advances. Recently, FHLBanks began to focus new products on their members' need to manage interest-rate risk and mortgage prepayments. Table 8 provides a list of some of the credit products offered by FHLBanks. As the table indicates, advances can range from overnight borrowings to longer-term instruments, have fixed or variable interest rates, be callable at the FHLBank's option, and contain prepayment fees on advances which are paid off prior to maturity. In addition, several of these products can be used to aid member institutions to manage their exposure to interest-rate risk. For example, an interest-rate swap is an off-balance-sheet hedging instrument used to transform a thrift's short-term liabilities into long-term liabilities.

A typical thrift, with an asset side dominated by long-term, fixed-rate mortgage loans and a liability side dominated by short-term, effectively floating rate, deposits, might be interested in exchanging floating-rate liability payments for fixed-rate payments in order to lock in a positive interest rate spread. The thrift thus insulates itself against a decline in profitability when interest rates rise, but also reduces the opportunity to increase profits when interest rates fall. Interest

rate payments are based on the same principal amount which itself is never exchanged, and therefore, is referred to as the notional principal amount.

FHLBanks provide interest-rate swaps services for their member institutions to aid those institutions in the management of their interest rate and prepayment risk. In such cases, the FHLBanks essentially act as interest-rate swap dealers, entering into interest-rate swap transactions that meet the particular needs of the members or entering into offsetting swap transactions between a member and another party. The notional value of the interest-rate swaps reported by the FHLBank System as a result of its dealer activity was about $22 billion in 1996 (see table 4). According to Bowyer and Thompson (1989), FHLBanks participated as a dealer in $5.5 billion of interest-rate swaps at the end of 1987. An important question is why are banks providing services resembling those offered by investment banks, with less capital than that required of private dealers. Has the dealer market failed to provide these services to FHLBank System members? Are FHLBanks able to price more accurately the derivative instruments for members? And most importantly, is credit risk reflected in the prices charged by FHLBanks to individual member derivative counterparties? While FHLBank interest-rate risk products provide thrifts with the opportunities to manage their exposure to unanticipated changes in interest rates, FHLBank advances provide thrifts access to nondeposit sources of funds.

Regulation requires that FHLBanks secure the funds advanced to member institutions. This regulation is enforced by the FHLBanks' supervisory agency. The collateralization feature of advances give FHLBanks prior claim over assets in the event of a member failure. The collateral is in the form of first mortgages, U.S. government securities (Treasury and agency securities), deposits at FHLBanks and real estate assets approved by FHLBanks. While U.S. government

securities and deposits at FHLBanks represent high quality collateral to secure advances, mortgages could be low quality collateral because of the possibility of poor underwriting standards, leading to substandard loans. Despite the fact that each borrowing institution has a different risk profile and the collateral might be of questionable quality, FHLBanks offer advances at a flat-rate independent of risk. In addition, advances are made by FHLBanks to member institutions at below risk-free rates. This is possible because FHLBanks, in turn, are able to jointly issue consolidated obligations, or debt securities to the market, paying rates lower than similar securities issued by depository institutions. As indicated earlier, the market is willing to accept lower investment rates partly due to the tax-exempt status of the consolidated obligations, but also because it is pricing in an implicit government backing of the securities.

FHLBank advances aid poorly capitalized thrifts

Proponents of the FHLBank System argue that FHLBank advances are necessary to provide lending institutions that specialize in real estate with access to nondeposit sources of funds because such institutions have few, if any, alternative nondeposit sources of funds. This is especially a concern for small thrifts, which may not participate in the repurchase agreement, commercial paper, or brokered deposits markets. However, in 1988, advances to institutions with less than $500 million in total assets accounted for only 13 percent of all advances (see table 9). On the other hand, thrifts with total assets in excess of $500 million relied heavily on advances in 1988, with some 89 percent borrowing from FHLBanks, accounting for 87 percent of total FHLBank advances. Furthermore, FHLBank advances, which represented 11 percent, on average, of the borrowers' total assets in 1988, were being used to replace more costly funding sources rather than to fund additional mortgage lending (see Garcia and Plautz, 1988, and Mays and

DeMarco, 1989).

Thrifts with total assets in excess of $500 million rely heavily on advances, with some 85 percent borrowing from the FHLBank, accounting for two-thirds of total FHLBank advances. The ten largest thrifts alone account for 25 percent of total advances, with borrowings accounting for 23 percent of these institutions' total assets.

During the thrift debacle of the 1980s, FHLBank advances were increasingly used to provide lender-of-last-resort assistance to failing thrifts that were losing deposits, particularly uninsured deposits. Advances have sometimes been provided to thrifts that lacked the necessary collateral in exchange for a guaranty of repayment provided by FSLIC (see Garcia and Plautz, 1988). Table 10 shows the proportion of yearend total assets financed with advances for thrifts nationwide and for thrifts in the six states (California, Florida, Illinois, Louisiana, Oklahoma, and Texas) that accounted for the largest share of the total cost of failure resolutions from 1985–91.[15] Both nationwide and in five of the six states, insolvent thrifts, that is, thrifts with GAAP capital less or equal to zero, borrowed proportionately more from FHLBanks than solvent institutions. From these limited data, insolvent thrifts appear to use more FHLBank advances than the rest of the industry.

The tendency of FHLBanks to aid troubled thrifts raises several issues. First, FHLBanks are providing subsidized aid. Rates on advances, which are fixed at the time of borrowing, vary by maturity and date of commitment but not by risk of the borrowing thrift. The rates on advances are set by each FHLBank as a fixed spread over the System's expected cost of funds.[16] According to Garcia and Plautz (1988), these rates should be comparable to the rates that a large, well-capitalized thrift could obtain on its own account. While a large, well-capitalized thrift may

be paying a "fair" price for advances, a financially distressed association would be obtaining funds at below market rates.

Second, during the 1980s, aid to financially distressed thrifts by FHLBanks provided the funds necessary for the government to institute its capital forbearance program. This program allowed weak (high-risk) thrifts to continue to operate without the capital constraints imposed on strong (low-risk) thrifts. Supporters of forbearance policies argued that thrifts weakened by technical liquidity problems—cash outflows exceeding inflows—should be given the chance to recover.[17] As these temporary problems went away, the thrifts could use their new profits to build equity and reserves against future losses. However, in the late 1980s, forbearance was given to thrifts experiencing credit quality problems that far exceeded issues of technical liquidity.

Forbearance programs exempted some thrifts from regulatory capital requirements for extended periods of time. Other thrifts in forbearance programs were allowed to invent value for assets that artificially inflated their regulatory net worth. These included nonstandard considerations of appraised equity capital, income capital certificates, net worth certificates, and deferred losses. FHLBanks supported the operation of forbearance programs by extending advances to many failing thrifts as they lost deposits, particularly uninsured deposits.

Lack of reserves in the FSLIC fund prevented thrift regulators from resolving institutions commonly known to be beyond hope of recovery. The Competitive Equality Banking Act of 1987, among other things, required the FHLBB to give thrifts time to initiate strategies for a return to capital adequacy.

However, the evidence shows that capital forbearance was a gamble for the FSLIC and its cost has turned out to be significant (see DeGennaro and Thomson, 1996). The policy encouraged

thrift management to gamble for resurrection by making large volumes of high-risk, potentially high-profit loans. If the gamble paid off, the thrift would reap the profits; if it backfired, the FSLIC would be liable for the losses. This incentive arises from the combination of deregulation, inadequate regulatory supervision, and deposit insurance premiums that are not based on risk, and it is strongest when there is little equity left. Thus, the magnitude and cost of the thrift debacle in the 1980s were likely increased by forbearance policies that included, among other things, FHLBanks' provision of aid to financially distressed firms.

Table 11 provides financial characteristics of the 205 thrifts that were resolved by the FSLIC in 1988, the year before Congress passed FIRREA. Barth, Bartholomew, and Labich (1989) report that a substantial number of these resolved thrifts had been insolvent since the early 1980s. The delay in closing insolvent thrifts increased the value of access to deposit insurance and allowed thrifts to shift more risk to the deposit insurer. As table 11 shows, the thrifts resolved in 1988 held more commercial real estate loans, acquisition and development loans, non-mortgage loans (business and consumer), and direct investments—all generally viewed as riskier asset classes than residential mortgage loans—than the industry average in each of the three years prior to failure. At the same time, FHLBank advances as a fraction of total assets was higher at resolved thrifts than at non-resolved thrifts, rising from 6.4 percent at the end of 1985 to 10.6 percent in the last year before closure in 1988. These numbers suggest that FHLBank advances grew as thrift capital declined; advances also grew with the extent to which regulatory accounting practices artificially inflated capital. The result of these practices was the delayed closure of insolvent thrifts.[18] We examine this issue further using a regression equation that relates FHLBank advances to several factors, including the impact of regulatory accounting practices on

thrift capital.

Developing a model to explain FHLBank Advances

Following Mays and DeMarco (1989), we relate the ratio of FHLBank advances to total assets to a set of variables representing a thrift's financial characteristics and economic environment. In order to allow for the role of capital forbearance on a thrift's use of FHLBank advances, we also include a variable measuring the extent to which a thrift's has been allowed to "invent" assets to artificially inflate its capital. An empirical specification relating the ratio of FHLBank advances to total assets ($A_{j,t}^{k}$) of thrift j in period t and FHLBank district k to a set of correlates can be written as:

$$A_{j,t}^{k} = \beta_0 + \sum_{k=2}^{12} \beta_{0,k} FREG_k + \beta_1 RISK_{j,t} + \beta_2 BVA_{j,t} + \beta_3 ROA_{j,t} + \beta_4 FB_{j,t} + \varepsilon_{j,t}. \quad (1)$$

where $RISK_{j,t}$ is a vector that contains the various measures of risk of the asset portfolio of thrift j in period t; $BVA_{j,t}$ is the ratio of book value of capital to total assets; $ROA_{j,t}$ is the return on assets; $FB_{j,t}$ is a variable that captures regulatory forbearance; $FREG_k$ (k=2,...,12) is an indicator that equals to one if the thrift is located in the kth Federal Home Loan bank district, zero otherwise; and $\varepsilon_{j,t}$ is an error term.

The risk index of a thrift's asset portfolio, $RISK_{j,t}$, is captured by a thrift's holdings of commercial real estate (CMORT), residential mortgage loans (RMORT), and acquisition and development loans (ADL). All mortgage variables were divided by total assets. Barth and

Bradley (1989) find that, within the mortgage category, insolvent institutions rapidly increased their commercial real estate lending during the 1980s. Barth, Bartholomew, and Labich (1989) indicate that acquisition and development loans, which are loans to finance the purchase of land and the accomplishment of all improvement required to convert it to developed building lots, have a positive and statistically significant effect on resolution costs.

The capital ratio, BVA, defined as the ratio of GAAP net worth to total assets, should be negatively correlated with advances. A decline in capital relative to total assets increases the cost of alternative sources of funds, making advances more attractive because the advance rate does not vary with a thrift's financial condition. Thus, thrifts with low capital ratios will tend to borrow more from their FHLBanks than those with higher capital ratios. Earnings (ROA) are relevant because current profitability, defined as the ratio of net income to total assets, may be a good indicator of a thrift's future performance. Current profitability also is a measure of an institution's ability to maintain capital. A decline in ROA can be indicative of a relatively weak financial condition, and is likely to increase the cost of nondeposit sources of funds.

The extent to which regulators have permitted cosmetic inflation of capital through the use of various balance sheet "tricks" may be correlated with the ratio of FHLBank advances to total assets. Table 8 provides a list of items thrift regulators included in capital during the 1980s. To the extent that regulatory accounting practices delay the closure of troubled thrifts, we would expect these thrifts to exploit the advantages of access to flat-rate FHLBank advances. Following Goldberg and Hudgins (1996), we measure regulatory forbearance (FB) as the difference between RAP-defined capital and GAAP-defined capital. We expect FB to be positively correlated with the ratio of FHLBank advances to total assets.

One of the major distinctions between RAP capital and GAAP capital is the treatment of gains and losses on the sale of mortgage loans, mortgage-related securities, and debt securities. GAAP requires immediate recognition of gains and losses, while RAP allows a thrift to defer and amortize such gains and losses. Brewer (1989) reports that GAAP-insolvent institutions tend to hold more deferred losses per dollar of assets (DLOSS) than solvent institutions. In the empirical specification, we examine the relationship between FHLBank advances and the tendency to defer loan losses.

Another accounting issue is the treatment of goodwill. Goodwill consists principally of the amount over book value paid by a thrift to acquire other thrifts. To encourage healthy thrifts to purchase financially distressed thrifts, regulators allowed the acquiring thrift to record the excess of the acquisition price over the market value of the capital of the troubled thrift as goodwill and to amortize it as an expense for up to 40 years.[19] This would inflate the thrift's recorded capital, helping to maintain its aura of safety. To the extent that thrift regulators used the advance program "to pay acquirers off" for taking over failing thrifts, we would expect FHLBank advances relative to total assets to increase with the ratio of goodwill to total assets (GWILL).

As pointed out by Kane (1989) and Romer and Weingast (1992), interference in the regulatory process by members of Congress on behalf of thrifts in their districts delayed closure and, thus, gave thrifts time to engage in more risk-taking activities. According to Romer and Weingast (1992), this political interference was especially pronounced in the Dallas FHLBank district, as Texas bankers and real estate developers complained to their lawmakers that regulators were "unfairly" restricting real estate loans and refusing to allow lenders to restructure bad loans.

This resulted in the well-known meeting between Edwin Gray, then chairman of the FHLBB, and Jim Wright, Speaker of the House of Representatives, to work out an agreement to give thrifts time to recover from their financial distress.[20] Because of this political interference, lending by FHLBanks to thrift institutions is likely to vary across the 12 FHLBank districts. To capture differences in lending across districts, we included in the regression equation an indicator variable for each FHLBank district.[21] The indicator variables absorb the effects of all factors that are common to thrifts in the same FHLBank district.

Our regression equation also includes several variables that are a composite of the asset risk variables and the Dallas FHLBank district indicator variable. These composite variables capture the impact of various political maneuvers in the Dallas FHLBank district on advances to thrift institutions. This allows us to determine whether thrifts in the Dallas FHLBank district with higher-risk asset portfolios tended to finance a greater proportion of their assets with FHLBank advances than those with lower-risk asset portfolios.[22] Finally, time binary variables are included in equation (1) to control for the effects on FHLBank advances of changes in time-specific factors that are not captured by $RISK_{j,t}$, $BVA_{j,t}$, $ROA_{j,t}$, and $FB_{j,t}$.[23]

A. Empirical results

We estimated equation (1) to examine the relationship between FHLBank advances relative to total assets and a set of correlates. Table 13 reports the results of these pooled cross section time series regression using end of year data of all FSLIC-insured institutions from 1980 to 1992. The dependent variable is year-end advances-to-total assets for each institution.

Column 1 in table 13 is the basic model, excluding the separate effects on advances of deferred loan losses, goodwill, and the composite variables. Column 2 adds the separate effects of

deferred loan losses and goodwill to the basic regression equation in column 1. Column 3 expands the basic equation to include the composite variables that interact the FHLBank of Dallas indicator variable with the asset risk measures. Column 4 adds the separate measures of regulatory forbearance (deferred loan losses and goodwill) to the empirical specification in column 3.

The results in table 13 column 1 indicate that the capital ratio and the forbearance variable are both correlated with thrifts' advances. Advances increases as capital declines, supporting the hypothesis that advances are particularly attractive to poorly capitalized institutions. The coefficient on the capital ratio, –0.0445, means that a one percentage point decrease in the capital ratio is associated with an approximately 0.04 percentage point increase in the ratio of FHLBank advances to total assets for the average institution. Thrifts that rely heavily on regulatory accounting tricks to inflate their capital tend to borrow more from FHLBanks than other institutions. The coefficient suggests that a one percentage point increase in the difference between RAP capital and GAAP capital results in a 0.24 percentage point increase in the ratio of FHLBank advances to total assets. This is statistically significant at conventional levels.

The positive coefficients on commercial real estate loans and acquisition and development loans indicate that as the fraction of assets in these categories increases, institutions will borrow more. The results in table 13 also suggest that more profitable and small institutions will tend to borrow less. Both the profitability and size effects are statistically significant at conventional levels. Finally, thrifts in the Dallas district tend to borrow more than thrifts in other FHLBank districts, except for thrifts in the FHLBank districts of Boston, Topeka, and Seattle. For example, thrifts in the Chicago district had, on average, an FHLBank advances-to-total assets ratio that was

1.64 percentage points lower than that of thrifts in the Dallas district.

Table 13, column 2 includes measures of regulatory accounting tricks used to inflate thrifts' recorded capital. Holding everything else constant, thrifts that rely more heavily on deferred loan losses to inflate capital tend to borrow less, while those with relatively more goodwill tend to borrow more than other institutions. The coefficient on the deferred loan loss variable suggests that a one percentage point increase in this variable is associated with a 0.27 percentage point decrease in the FHLBank advances-to-total assets ratio. Thus, a thrift with a lower ratio of deferred loan losses to total assets than another thrift will borrow less from FHLBanks, even if the two institutions have the same gap between RAP capital and GAAP capital. Although the sale of assets with below market yields generates losses for a thrift, it is an alternative to borrowing from FHLBanks, providing funds to support a thrift's activity. The results in table 13 also imply that a one percentage point increase in the goodwill ratio is associated with a 0.17 percentage point increase in the FHLBank advances-to-total assets ratio.

Column 3 of table 13 reports the results of including the composite variables (that is, the product of the Dallas FHLBank indicator variable and the risk variables) in the basic regression equation. The total impact on the advances ratio of thrifts in the Dallas district of, say, changes in residential mortgage loans is the sum of the coefficients on the residential mortgage loan ratio, 0.0149, and the residential mortgage loan ratio composite term, –0.0517. Similar calculations are performed to determine the impact on the advances ratio of thrifts in the Dallas district of changes in the other mortgage loan categories. For thrifts outside the Dallas district, the coefficients on the mortgage loan ratios capture the impact on those thrifts' advances ratio.

When the composite terms are added to the basic specification, the coefficient estimates

on the capital, forbearance, earnings, and size variables are qualitatively similar with those in column 1. For example, the capital ratio continues to be negatively correlated with the advances ratio, though the coefficient estimate is –0.0457 in this empirical specification compared with –0.0445 in the basic model in column 1. The results in column 3 suggest that thrifts in the Dallas FHLBank district with relatively higher assets devoted to, for example, residential mortgage loans tend to borrow less than other institutions (0.0149 – 0.0517= –0.0368). This suggests that a one percentage point increase in residential mortgage loan ratio is associated with a 0.04 percentage point decrease in the advances ratio. This result is inconsistent with the stated purpose of FHLBank advances to support the residential real estate market. Table 13, column 4 combines additional measures of regulatory capital forbearance with the specification used in column 3. The results are similar to those reported in column 3. Overall, low capital institutions borrow more, and thrifts engaging in regulatory accounting practices make heavy use of the FHLBank lending facility.

Conclusion

This paper examines the FHLBank System and its role in the thrift debacle of the 1980s. The FHLBank System was established to extend funds to thrifts in support of their mortgage lending activity. At the time, its was perceived that thrifts were subjected to unique liquidity problems requiring a specialized lending institution. While FHLBanks provide thrifts with access to nondeposit sources of funds, they can provide an opportunity for financially distressed institutions to borrow at relatively attractive interest rates. FHLBanks are able to raise funds at costs lower than non-governmental entities because of the perceived well-capitalized position of the FHLBanks, the tax-exempt status of their debt obligations at the state and local levels, and the

implicit government guarantee. This study finds that FHLBanks have relatively low capital given their activities, some of which go well beyond the activities needed to accomplish their primary mission. This study also finds that financially distressed thrifts tend to borrow more advances from FHLBanks than other institutions. In addition, the regulatory practice of allowing troubled thrifts to invent ways to inflate their recorded, but not economic, capital tends to be associated with more borrowings from FHLBanks.

Footnotes

1. Thrifts include savings and loan associations and some savings banks. This term has been used to apply to all types of depository institutions that are not commercial banks.

2. See the CBO (1993) study for an excellent discussion of the savings and loan (S&L) debacle of the 1980s.

3. See Garcia and Plautz (1988) for an excellent discussion of the collateralization requirements of the FHLBank System and how troubled S&Ls were able to get around these requirements.

4. The FSLIC's policies and procedures for guaranteed advances specify that guarantees will be provided for advances only if the insured S&L is a supervisory case that 1) is book-value insolvent, 2) is cash insolvent, 3) is losing money so that it will soon become book-value insolvent, 4) has insufficient collateral to obtain an advance without a guarantee, and 5) has agreed to be merged when the FSLIC can find a suitable merger partner. See Garcia and Plautz (1988) for an excellent discussion of this program.

5. In October 1984, the FHLBB placed a sunset provision on the use of deferred losses on the sale of mortgages that bear below-market interest rates. After October 24, 1984, Thrifts were prohibited from amortizing losses on sales of new mortgages. However, they were still allowed to defer losses on loans made prior to October 24, 1984. See Hill and Ingram (1989) for a discussion of this point.

6. Hunter, Verbrugge, and Whidbee (1966) found significant evidence of forbearance in the regulation of de novo thrifts in the 1980s.

7. An alternative explanation is that the problems in the Dallas FHLBank district were because of the failure of the FHLBank's supervisory staff to adequately control the high-risk behavior of member thrifts. See Cole (1993,1990) for a discussion of this issue. Another explanation is that congressional pressure persuaded thrift regulators, not only in the Dallas FHLBank district but in other FHLBank districts, to grant forbearance and increased access to the FHLBank advance program to aid poorly capitalized institutions.

8. Although insurance companies and mutual savings banks were eligible for membership, few, if any, of these institutions applied for membership.

9. The President of the United States appoints the other four directors. By law, the four appointed directors must have backgrounds in housing finance or a demonstrated commitment to providing specialized housing credit, and one such director must have a background with an organization that has a two-year record of representing consumer or community interests on either banking services, credit needs, financial consumer protection, or housing.

10. Retained earnings represent only about 3% of total equity capital.

11. Part of the restructuring by FIRREA included annual contributions toward financing the resolution of insolvent institutions and toward affordable housing programs for low-income homebuyers. $30 billion of debt was issued by the Resolution Funding Corporation and used by the Resolution Trust Corporation to finance the sale and closure of problem savings and loans. The Act requires the regional Federal Home Loan Banks to collectively pay $300 million toward the interest on this debt, which does not mature until 2030. The Affordable Housing Program provision of FIRREA requires that the system contribute $100 million toward a fund that will grant interest-subsidized loans to low-income homebuyers.

12. Section 303 of FIRREA requires, among other things, that thrifts hold at least 70 percent of their portfolio assets in residential mortgages, mortgage-backed securities and other very narrowly specified assets classes to be able to borrow from an FHLBank. Portfolio assets equal total assets less fixed assets, less goodwill and other intangible assets and less liquid assets in excess of 10% of total assets. This Qualified Thrift Lender (QTL) requirement has been reduced to 65 percent. The Economic Growth and Regulatory Paperwork Reduction Act of 1996 expanded the menu of assets that can be used to satisfy the QTL test. These assets include educational, credit card, and small business loans. Qualified Thrift Lenders must have at least 65% of assets in mortgages or mortgage-related securities for nine months on a monthly average basis. Prior to 1980, an institution was limited to borrowing a maximum of 12 times the value of its FHLBank stock.

13. This act also extended membership to credit unions.

14. Some FHLBanks provide financial advisory services, trading and risk management software, and educational seminars. A few FHLBanks offer specialized to aid member institution in the management of interest-rate risk. For example, the FHLBank of Chicago has a new pilot program in which a member institution sells mortgage loans to the bank rather than to the Federal National Mortgage Corporation or the Federal Home Loan Mortgage Corporation. The member retains the servicing rights and most of the credit risk, while the FHLBank manages the interest-rate risk and generates greater income for the FHLBank than with traditional investments (see Muolo, 1997; and O'Sullivan, 1997). The member institutions also will benefit by paying lower credit guarantee fees. The Federal Home Loan Mortgage Corporation and Federal National Mortgage Association charge a flat fee between 20-25 basis points, independent of regional charge-off differences. Therefore, FHLBank districts with fewer loan defaults, like Chicago, subsidize districts with more defaults, like San Francisco (not surprising, this district is among the group opposed to the pilot program).

15. See Barth, Bartholomew, and Labich (1989).

16. The permissible spread over the FHLBank System's expected cost of funds is limited by its supervisory agency. See Mays and DeMarco (1989) for a discussion of this point.

17. Kaufman (1972) used the term technical liquidity problems to refer to a situation in which a thrift institution, as a result of an unanticipated rise in interest rates, generates insufficient current accounting earnings on assets to finance competitive deposit rates.

18. In their analysis of de novo thrifts, Hunter, Verbrugge, and Whidbee (1996) found that capital was a key factor contributing to the delay in closing failed thrifts.

19. See Barth (1991) for an excellent discussion of this issue.

20. See Hunter, Verbrugge, and Whidbee (1996) for a discussion of the so-called Gray effect, that is, the tendency of the regulators to keep thrifts open in hopes of a miraculous recovery.

21. We excluded one of the FHLBank district indicator variables to avoid the "dummy variable trap." By including an intercept term and separate indicator variables for each district, we would have a problem of perfect multicollinearity, whereby the sum of the district indicator variables is equal to one and is perfectly correlated with the intercept term. To avoid this dummy variable trap, researchers omit one of the indicator variables (see Greene, 1997, p.230).

22. See Romer and Weingast (1992) for a discussion of the role politicians played in prolonging this crisis in the Dallas FHLBank district.

23. For a discussion of the existence of "other effects" in pooled cross-sectional time-series analysis see Balestra and Nerlove (1966).

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Table 1
Financial characteristics of FHLBanks
(in million dollars)

Year	Advances	Investments	Consolidated Obligations	Capital Stock	Retained Earnings	Tota
1960	$1,981	$1,233	$1,266	$989	$83	$
1965	$5,997	$1,640	$5,221	$1,277	$158	$
1970	$10,615	$3,732	$10,181	$1,607	$260	$
1971	$7,936	$2,520	$6,840	$1,618	$281	$
1972	$7,979	$2,225	$6,671	$1,756	$299	$
1973	$15,147	$3,437	$14,449	$2,122	$374	$
1974	$21,804	$3,097	$19,445	$2,624	$539	$
1975	$17,845	$4,376	$16,383	$2,705	$590	$
1976	$15,862	$6,079	$14,620	$2,889	$634	$
1977	$20,173	$3,749	$16,009	$3,295	$681	$
1978	$32,670	$3,414	$25,109	$4,120	$837	$
1979	$41,838	$3,693	$30,372	$5,149	$943	$
1980	$48,963	$4,328	$37,268	$5,160	$869	$
1981	$65,194	$8,157	$54,131	$5,827	$974	$
1982	$66,011	$12,575	$55,972	$6,269	$1,144	$
1983	$58,977	$9,841	$48,931	$6,395	$1,339	$
1984	$74,618	$17,584	$65,085	$7,200	$1,503	$
1985	$88,835	$19,243	$74,460	$8,313	$1,792	$
1986	$108,645	$17,388	$88,752	$9,485	$2,323	$
1987	$133,058	$16,538	$116,386	$11,281	$2,464	$
1988	$152,799	$16,981	$136,513	$13,177	$2,343	$
1989	$141,795	$33,912	$136,799	$13,385	$820	$
1990	$117,103	$44,280	$118,437	$11,104	$521	$
1991	$79,065	$71,740	$108,149	$10,200	$495	$
1992	$79,884	$79,133	$114,652	$9,921	$531	$
1993	$103,131	$72,293	$138,741	$10,667	$456	$
1994	$125,893	$109,147	$200,196	$12,190	$382	$
1995	$132,264	$135,426	$231,417	$13,892	$390	$
1996	$161,372	$125,231	$251,316	$15,645	$450	$

Source: Federal Housing Finance Board.

Table 2
Composition of the investment portfolio of FHLBank (percent of total investment)

Type of security	1985	1987	1989	1991	1992	1993	1994
Treasury securities	5.57	4.76	2.79	1.62	4.05	5.92	3.68
Federal agency securities	0.33	0.53	0.55	0.00	15.16	12.40	10.55
Federal funds	75.76	71.27	62.93	44.53	34.49	33.56	30.40
Bankers' acceptances	0.37	0.22	0.34	0.00	0.00	0.00	0.00
CDs	0.97	1.71	0.97	0.00	0.00	0.00	0.00
FHLBank consolidated securities fund*	16.96	20.19	20.60	0.00	0.00	0.00	0.00
Securities repurchase agreements	0.00	0.00	0.00	15.17	12.33	7.66	13.06
Commercial paper**	0.00	0.00	5.88	9.75	0.00	0.00	7.82
Mortgage-backed securities	0.00	0.00	6.23	21.33	29.06	32.18	30.08
Other securities	0.03	1.74	0.00	7.69	4.91	8.28	2.42
Total dollar investment (in billion dollars)	19.3	17.4	32.0	72.4	79.7	72.9	106.7

* The consolidated securities fund is a centralized portfolio management system for securities owned by FHLBanks operated by the O primarily in short-term money market instruments.
**Beginning in 1996, commercial paper also contains bank notes.

Source: Federal Housing Finance Board.

Table 3
Consolidated debt obligations of FHLBanks

Bond type	1989		1993		1996	
Fixed-Rate			$63,591,486	46%	$144,205,733	57%
Step-Up			$8,090,000	6%	$7,419,000	3%
Simple Variable-Rate			$11,675,600	8%	$19,927,392	8%
Inverse Floating-Rate			$4,631,500	3%	$819,025	0%
Fixed that Converts to Variable			$6,055,113	4%	$4,181,960	2%
Variable that Converts to Fixed			$775,000	1%	$446,098	0%
Comparative Index			$4,652,210	3%	$1,246,685	0%
Other			$3,621,000	3%	$1,932,760	1%
Total	$120,421,123	88%	$103,091,909	74%	$180,178,653	72%
Discount Notes	$16,378,115	12%	$35,652,992	26%	$71,125,221	28%
	$136,799,238	100%	$138,744,901	100%	$251,303,874	100%

Source: Federal Housing Finance Board

Table 4
Derivatives activity of FHLBank System, 1991-1996
(in billion dollars)

Purpose	1991	1992	1993	1994	
Derivatives wherein FHLBank acts as a dealer	3.0	3.2	4.7	8.5	
Derivatives used as hedges					
Consolidated obligations	42.5	56.2	73.2	94.6	
Advances	1.7	1.9	7.8	7.2	
Investments	3.6	4.3	9.4	17.9	
Held to maturity securities	n.a.	n.a.	9.3	14.7	
Available for sale securities	n.a.	n.a.	0.0	3.1	
Deposits	n.a.	n.a.	0.7	0.7	
Derivatives used for asset/liability management	n.a.	6.7	5.9	4.8	
Total of Derivatives used as hedges	47.8	69.2	96.7	125.2	
Total Derivatives	50.8	74.4	101.3	133.7	
Type					
Interest-rate swaps	n.a.	n.a.	92.5	124.2	
Interest-rate caps	n.a.	n.a.	3.9	6.3	
Interest-rate floors	n.a.	n.a.	2.4	2.6	
Financial futures	n.a.	n.a.	2.3	0.0	
Other	n.a.	n.a.	0.2	0.5	

Source: Federal Housing Finance Board

Table 5

FHLBank membership

Institutions	1989*	1990	1991	1992	1993	1994
Savings and loan associations	3217	2789	2528	2291	2176	2067
Commercial banks	--	--	508	1295	2202	3133
Credit unions	--	--	--	26	57	86
Insurance companies	--	--	--	12	16	21
Total members	3217	2852	3064	3624	4451	5307
Advances (in billion dollars)						
Savings and loan associations	141.8	--	76.2	72.3	85.2	97.6
Non-savings and loan associations	--	--	2.1	6.5	16.7	26.6
Other**	--	--	0.8	1.1	1.2	1.7
Total advances	141.8	81.9	79.1	79.9	103.1	125.9

Source: Federal Housing Finance Board

Table 6
Maturity distribution of FHLBank advances
(in million dollars)

	1987	Percent	1996	Percent
1 year	50,803	38	98,324	61
2 years	20,235	15	24,885	15
3 years	15,057	11	11,515	8
4 years	14,187	11	5,972	4
5 years	10,597	8	8,941	5
Greater than 5 years	22,175	17	10,632	7
Total	133,055		161,396	

Source: Federal Housing Finance Board

Table 7
FHLBank lending activity
(in million dollars)

	Advances			
Year	Made	Repaid	Outstanding	percent
1960	1,943	2,097	1,981	2.9
1965	5,007	4,335	5,997	4.7
1970	3,255	1,930	10,615	6.2
1971	2,714	5,392	7,936	3.9
1972	4,792	4,750	7,979	3.4
1973	10,013	2,845	15,147	5.7
1974	12,763	6,106	21,804	7.5
1975	5,468	9,425	17,845	5.4
1976	8,114	10,097	15,862	4.1
1977	13,756	9,445	20,173	4.5
1978	25,166	12,800	32,670	6.3
1979	29,166	19,998	41,838	7.3
1980	36,585	29,460	48,963	7.9
1981	53,941	37,709	65,194	10.0
1982	53,744	52,928	66,011	9.5
1983	44,724	51,758	58,977	7.8
1984	91,239	75,598	74,618	8.4
1985	133,651	119,417	88,835	9.4
1986	181,661	161,833	108,645	9.3
1987	194,381	170,000	133,058	10.6
1988	187,536	167,809	152,799	11.5
1989	218,876	229,874	141,795	11.3

Source:Savings Institutions Sourcebook, United States League of Savings Institutions, 1987; FHLBanks Financial Reports, 1987-1989; and Savings and Home Financing Source Book, 1989, OTS, Washington, D.C.

Table 8
Selected products offered by FHLBanks

Since the passage of FIRREA, FHLBanks have been expanding the product mix of advances offered to their member thrift's. There are several factors contributing to this change in behavior. First, it is likely that the thrift's have developed a more sophisticated risk management approach, demanding more complex products to meet their needs. Furthermore, FHLBanks have become more customer-focused since FIRREA. In an effort to meet their financial obligations mandated by FIRREA, FHLBanks have expanded their advances. Finally, as industry financial stability has improved, the FHLBanks also face greater competition in providing credit and risk management services. As thrift's become less risky, institutions other than the FHLBanks become more willing to lend to them.

In the 1990 FHLBanks' annual reports, a few districts highlighted one or two new advance products. However, the advances offered were primarily simple fixed, variable or amortizing loans. By the year 1996, the FHLBank annual reports and web pages boasted nearly one dozen different advance and risk management products, several of which were introduced during the year. The following table represents a basic product list, with each FHLBank customizing it menu of products according to their members' demand.

Product	**Description**
Adjustable-rate advances	Adjustable-rate advances based on the borrower choice of many different indices (LIBOR, prime, or Treasury rate).
Amortizing/Principal reducing advances	Offers borrowers a fixed rate on a payment structure that matches amortizing mortgage loans with a balloon payment at maturity. May also include an option to prepay additional principal once a year.
Callable/Convertible advances	A below-market fixed-rate advance with embedded multiple call options allowing the FHLBank to call the loan at specified dates, thus requiring the borrower to repay the loan or convert to an adjustable-rate.
Capped floater advances	An advance charging a variable-rate based on a spread over some index, with a specified maximum rate that can be charged.
Fixed-rate advances	Fixed-rate advances with short or long maturities.
Putable/Returnable fixed-rate advances	A fixed-rate advance with put options enabling the bank to repay a portion or the entire amount at designated intervals without repayment fees.
Repo advances	A fixed-rate advance with same day funding availability.
Cash management advances	Fixed- or variable-rate overnight funding.
Short-term advantage advances	Short-term fixed-rate source of funds.
Forward rate commitments	A rate lock for advances that will occur in 3-24 months.
Interest-rate caps, floors, and collars	Off-balance sheet instruments used to manage interest-rate risk.

Table 8 (Cont'd)

Interest-rate swaps	Interest-rate risk management products that take advantage of FHLBank AAA-credit rating.

Line of credit	Backup liquidity source.

Table 9
FHLBank thrift and Commercial Bank Members, Deember 31, 1996

Asset Size	Number of Institutions	Percent that Borrow	Advances to Borrower assets (Percent)	
Thrifts	(1)	(2)	(3)	
1. Less than $500 million	1595	61.4	10.2	
2.$500 million or more	279	88.5	14.4	
Commercial Banks				
3. Less than $500 million	3687	51.3	3.9	
4.$500 million or more	377	72.1	3.1	
5. Ten Largest thrifts	10	100	13.4	

Source: Federal Housing Finance Board

Table 10
Federal Home Loan Bank Advances of thrifts (December 31 of each year)
(Percent of total assets)

		Years					
	Capital ratio	1985	1986	1987	1988	1989	
Total Industry	Less than or = to 0%	6.75	8.05	9.37	10.82	9.52	
	Between 0 and 3%	4.82	5.16	6.91	7.78	7.86	
	Greater than 3%	2.77	3.24	4.13	4.29	3.67	
	Total industry	3.78	4.25	5.34	2.49	4.93	
CA	Less than or = to 0%	9.81	8.09	3.29	3.48	3.14	
	Between 0 and 3%	5.30	5.90	5.08	6.81	6.26	
	Greater than 3%	3.54	3.79	4.54	5.08	5.25	
	Total state	4.70	4.70	4.40	5.15	5.11	
FL	Less than or = to 0%	6.38	7.48	9.56	10.85	8.00	
	Between 0 and 3%	5.40	5.63	8.58	9.95	7.49	
	Greater than 3%	3.37	4.34	5.45	6.14	4.99	
	Total state	4.21	4.92	6.43	7.20	5.80	

Table 10 (Cont'd)

		Years					
	Capial ratio	1985	1986	1987	1988	1989	
IL	Less than or = to 0%	3.51	4.19	6.09	6.29	4.78	
	Between 0 and 3%	3.67	3.38	4.15	4.33	3.62	
	Greater than 3%	1.24	2.07	2.45	2.06	1.92	
	Total state	2.33	2.76	3.50	3.12	2.57	
LA	Less than or = to 0%	12.32	10.85	13.10	15.77	12.13	
	Between 0 and 3%	4.60	4.33	5.05	5.40	2.24	
	Greater than 3%	2.33	2.62	3.65	5.32	3.54	
	Total state	5.49	5.25	6.43	8.81	6.53	
OK	Less than or = to 0%	5.99	8.74	11.57	7.87	9.07	
	Between 0 and 3%	8.31	7.60	10.69	10.67	11.35	
	Greater than 3%	5.50	5.20	5.45	9.11	5.24	
	Total state	6.07	6.77	8.84	9.48	8.03	

Table 10 (Cont'd)

		Years					
	Capital ratio	1985	1986	1987	1988	1989	
TX	Less than or = to 0%	6.26	9.97	11.30	13.86	10.24	
	Between 0 and 3%	3.88	4.38	6.40	10.64	14.77	
	Greater than 3%	4.31	4.26	5.80	7.03	5.02	
	Total state	4.52	6.01	8.36	10.45	9.19	

In this table, thrifts are divided into three groups: (1) thrifts with negative book equity according to generally principles (GAAP); (2) low-capital (that is, positive net worth below 3 percent of assets); and (3) well-capitali worth above 3 percent of assets).

Source: Federal Reserve Board of Governors, *Savings and Loan Regulatory Reports*, yearend 1985-91.

Table 11
Federal Home Loan Bank advances and other financial characteristics of 1988 resolutions (205)
(Percent of total assets)

Financial ratios	1985			1986			1987	
	1988 failures	Industry		1988 failures	Industry		1988 failures	Industry
Mortgage loans								
Residential	34.84	50.84		33.06	48.27		32.78	48.86
Commercial	13.76	8.52		12.65	8.48		11.96	8.31
Land	9.50	2.53		8.55	2.40		6.00	1.98
Others	12.54	11.44		12.17	12.03		11.76	13.58
Nonmortgage loans	7.18	5.48		7.45	5.65		6.91	5.66
Direct investment	4.72	1.29		5.06	1.36		5.35	1.37
Junk bonds	0.15	0.10		0.16	0.10		0.15	0.10
Advances	6.39	3.78		8.33	4.25		10.65	5.34
RAP	1.61	5.26		-5.57	4.82		-19.41	3.60
GAAP	-0.84	4.13		-8.10	3.77		-22.14	2.65
TAP	-2.56	3.30		-9.74	2.98		-23.55	1.83
ROA	-0.48	0.04		-2.08	-0.13		-2.84	-0.30

Source: Federal Reserve Board of Governors, *Savings and Loan Regulatory Reports*, yearend 1985, 1986, and 1987

Table 12
Items used to artificially raise recorded capital

1. Losses from the sale of assets with below market yields can be deferred (1981). Generally accepted accounting principles (GAAP) does not permit this type of account to be included in capital.

2. The Federal Home Loan Bank Board (FHLBB) allowed qualifying mutual capital certificates to be used by savings and loans to increase reported net worth (1980).

3. Income capital certificates are sold (for cash or interest-bearing notes) to the Federal Savings and Loans Insurance Corporation (FSLIC) to increase reported net worth (1981). This item was included in GAAP net worth in 1984.

4. Net worth certificates are authorized by the Garn-St Germain Depository Institutions Act of 1982 to increase reported net worth (October 1982).

5. Contra-asset accounts, including loans in process, unearned discounts, deferred fees and credits, are included in net worth (June 1982).

6. Appraised equity capital (excess over book value of appraised value of office land, buildings and improvements, as permitted by the FHLBB) is included in net worth (1982).

7. Qualifying subordinated debentures having remaining term to maturity or term to redemption exceeding one year are included in net worth (1982).

8. Equity can be increased by the amount of goodwill and other intangible assets resulting from a merger. Goodwill is the difference between the market value of a firm's net worth and the value based on tangible assets only. Goodwill represents the value of a franchise, including name recognition, an established reputation, and loyal customers. For many thrifts, goodwill was booked as capital when they acquired other enterprises at greater than tangible asset value.

Source: Barth (1991).

Table 13
Relationship between advances and financial characteristics of FSLIC-insured thrifts over the 1980-1992 period

This table provides the regression results of the relationship between the ratio of FHLBank advances to total assets and selected financial characteristics of FSLIC-insured thrifts. The city variables are binary variables for FHLBank districts. The omitted binary variable is the Dallas FHLBank district. The variable TDUM is equal to one if year is greater than or equal to 1990, zero otherwise. CMORT is commercial real estate divided by total assets; RMORT is residential real estate divided by total assets; ADL is acquisition and development loans divided by total assets; ROA is net income divided by total assets; SIZE is the natural logarithm of total assets; BVA is generally accepted accounting principle capital divided by total assets; FB is the difference between regulatory accounting principle capital and generally accepted accounting principle capital divided by total assets; LOSS is deferred losses divided by total assets; GWILL is intangible assets (primarily goodwill) divided by total assets; and NUMBER is the number of observations. The numbers in parentheses below the coefficient estimates are t-statistics; * indicates significance at the 10% level; ** indicate significance at the 5% level; and *** indicate significance at the 1% level.

Variable	(1)	(2)	(3)	(4)
Intercept	-0.1197 (-27.58)***	-0.1163 (-26.48)***	-0.0901 (-16.95)***	-0.0884 (-16.51)***
Boston	0.0170 (8.35)***	0.0177 (8.71)***	-0.0198 (-3.37)***	-0.0172 (-2.90)**
New York	-0.0164 (-10.75)***	-0.0154 (-10.09)***	-0.0522 (-9.24)***	-0.0493 (-8.66)***
Pittsburgh	-0.0113 (-7.39)***	-0.0105 (-6.85)***	-0.0479 (-8.35)***	-0.0452 (-7.82)***
Atlanta	-0.0086 (-6.51)***	-0.0079 (-5.97)***	-0.0463 (-8.09)***	-0.0436 (-7.56)***
Cincinnati	-0.0132 (-9.90)***	-0.0125 (-9.37)***	-0.0500 (-8.81)***	-0.0474 (-8.29)***
Indianapolis	-0.0127 (-8.33)***	-0.0119 (-7.79)***	-0.0493 (-8.62)***	-0.0465 (-8.07)***
Chicago	-0.0164 (-12.92)***	-0.0158 (-12.46)***	-0.0525 (-9.47)***	-0.0500 (-8.95)***
Des Moines	-0.0002 (-0.13)	0.0006 (0.38)	-0.0367 (-6.53)***	-0.0339 (-5.99)***
Topeka	0.0261 (14.47)***	0.0271 (15.02)***	-0.0113 (-1.98)**	-0.0084 (-1.46)
San Francisco	-0.0055 (-2.96)***	-0.0048 (-2.57)**	-0.0427 (-7.23)***	-0.0401 (-6.73)***
Seattle	0.0383 (15.53)***	0.0390 (15.90)***	0.0011 (0.18)	0.0037 (0.60)

Table 13 (Cont'd)

TDUM	-0.0133 (-7.09)***	-0.0123 (-6.53)***	-0.0125 (-6.81)***	-0.0116 (-6.29)***
CMORT	0.0720 (11.84)***	0.0737 (12.16)***	0.0897 (13.10)***	0.0905 (13.26)***
CMORT x Dallas	------	------	-0.0969 (-5.28)***	-0.0932 (-5.06)***
RMORT	0.0063 (3.03)***	0.0085 (4.23)***	0.0149 (6.85)***	0.0164 (7.57)***
RMORT x Dallas	-------	-------	-0.0517 (-6.82)***	-0.0484 (-6.34)***
ADL	0.0375 (3.01)***	0.0361 (2.90)***	0.0973 (6.26)***	0.0967 (6.25)***
ADL x Dallas	-------	-------	-0.1179 (-4.90)***	-0.1174 (-4.88)***
ROA	-0.2358 (-2.52)**	-0.2284 (-2.44)**	-0.2304 (-2.49)**	-0.2240 (-2.42)**
SIZE	0.0140 (45.95)***	0.0135 (42.97)***	0.0141 (47.65)***	0.0135 (43.92)***
BVA	-0.0445 (-2.00)**	-0.0450 (-2.02)**	-0.0457 (-2.21)**	-0.0462 (-2.21)**
FB	0.2441 (5.64)***	0.4610 (4.14)***	0.2392 (5.78)***	0.4469 (4.13)***
LOSS	-------	-0.2732 (-2.41)**	-------	-0.2620 (-2.36)**
GWILL	-------	0.1688 (8.67)***	-------	0.1612 (7.94)***
Number of observations	39381	39381	39381	39381
Adjusted R^2	0.21	0.22	0.22	0.22
F-Statistic	360.51	345.35	335.71	322.71

Source: Authors' calculations.