Financial Déjà vu?

The Farm Credit System's past woes could strike the Federal Home Loan Bank System.

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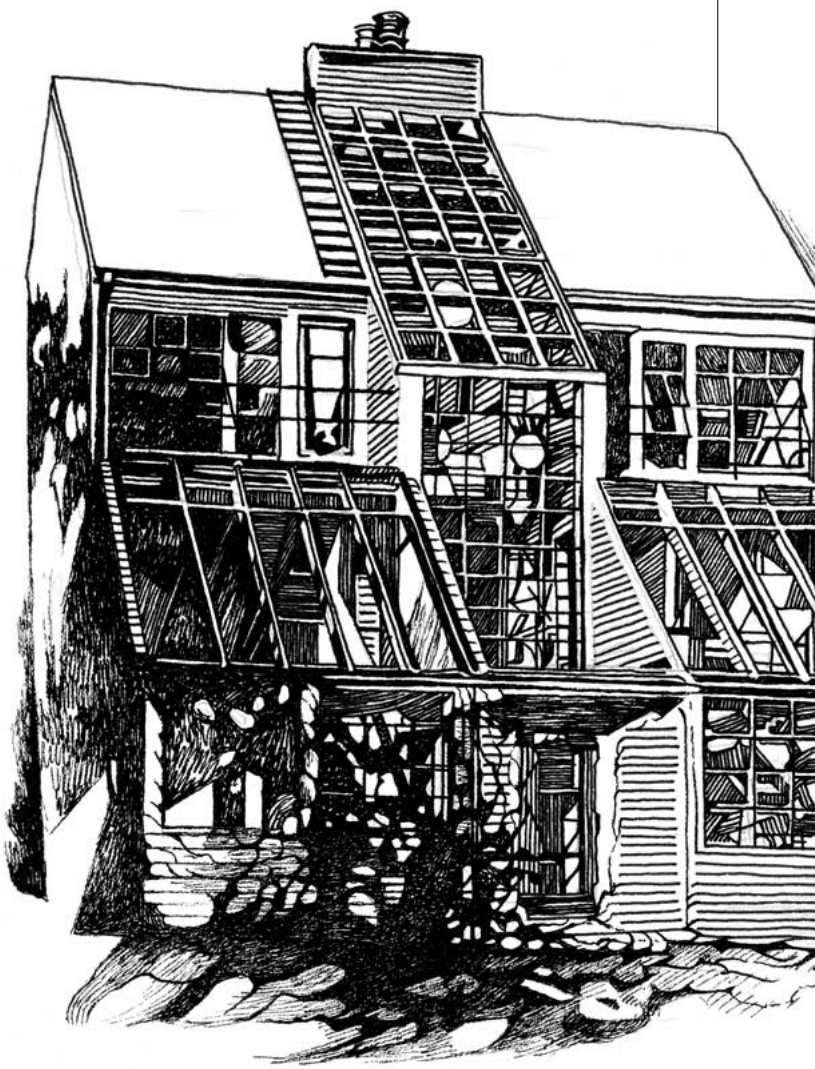
CONGRESS ESTABLISHED THE FEDERAL Home Loan Bank System (FHLBS) in 1932 to increase liquidity and the volume of lending for residential mortgages. In 1999, the Gramm-Leach-Bliley Act significantly changed both the structure and mission of the FHLBS. The act relaxed restrictions on the admissible portfolios of the federal home loan banks (FHLBanks), altered their capital regulations, and encouraged them to participate directly in both primary and secondary markets for mortgages. Combined with subsequent financial innovations pursued by FHLBS member institutions, the changes alerted academics, policymakers, and the business press to the possibility of systemic risk posed by the FHLBS to financial markets and the subsequent liability of the federal government.

The Farm Credit System (FCS), like the FHLBS, is a government-sponsored enterprise organized on a mutual basis. The FCS is composed of member lending institutions known as the federal land banks. Because of deregulation and unanticipated declines in the value of the agricultural mortgage loans that the banks held as assets, the FCS suffered severe financial distress and required recapitalization by govern-



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ment during the 1980s. There are a number of important parallels between the FCS and the FHLBS that should raise concern that the FHLBS may experience similar distress in the future. Among those parallels:

- **Joint and several liability:** The FHLBS issues debt for which each bank is jointly and severally liable, as did the FCS after 1971. The FHLBS, in exactly the same manner as the FCS, operates under an implicit guarantee of its debt provided by the U.S. government.
- **Capital regulations:** The capital structure of the FHLBS relies almost exclusively upon non-traded "borrower stock" (similar to the FCS) that renders the transparency of member institutions, in regard to solvency risk, difficult to observe.
- **Portfolio deregulation:** Gramm-Leach-Bliley relaxed portfolio restrictions for the members of the FHLBS, much as congressional legislation did for the FCS in the 1980s.
- **Diversification risk:** Both the FCS's federal land banks of the 1980s and the present-day FHLBanks are restricted geographically in their lending portfolio, and both prevent member institutions from diversifying risk through multiple membership.

HISTORY

The parallels between the FCS and the FHLBS are not surprising when the origins of each system are considered. Both represented congressional response to a perceived failure of mortgage markets to serve politically important constituencies on desirable terms.

Farm loan banks The FCS emerged from congressional concerns that credit offered to agriculture by private financial institutions was insufficient in quantity to meet the needs of farmers. What is more, lawmakers believed that the contract structure and covenants used by private lenders imposed an unnecessary financial burden on farmers who obtained mortgage credit. For example, prior to 1916, the only available mortgages were supplied by farm mortgage brokers and life insurance companies, and were short-term balloon mortgages. (Long-term amortized mortgages were unknown in the nineteenth century.) Typically, agricultural mortgages lasted three to five years, and mortgagors faced substantial renewal fees.

To resolve the access-to-credit problems, Congress passed the Federal Farm Loan Act of 1916. The act established 12 federal land banks to enhance liquidity in the market for agricultural mortgages through advances from the banks to local farm credit associations. Each association belonged to a land bank in order to receive advances, and purchased

ILLUSTRATION BY MORGAN BALLARD

stock in that bank in proportion to the advances received. The U.S. Treasury capitalized each federal land bank with $750,000 through an initial stock purchase. The banks began making loans of up to 40 years in duration, with most loans running between 20 and 35 years.

FHLBanks Similarly, given liquidity problems of savings and loans during the Great Depression, Congress passed the 1932 Federal Home Loan Bank Act. The act created the FHLBanks, regulated by the Federal Home Loan Bank Board (FHLBB), to serve as an alternative source of long-term funds for the institutions that specialized in residential mortgage lending. Funds for the FHLBanks came from both the issuance of debt obligations and the capital contributions of member institutions.

Subsequent legislation increased the regulatory scope of the FHLBB and enhanced the value of the FHLBS charters. In 1933, the Home Owners' Loan Act authorized the FHLBB to charter and regulate savings and loans, and the National Housing Act of 1934 created deposit insurance for those institutions. The FHLBanks, like the federal land banks of the FCS, received additional explicit and implicit advantages from their public charter that persist today. Consolidated obligations of the FHLBanks were exempt from SEC regulation and FHLBank earnings were exempt from federal, state, and local taxation. The Treasury, at its option, is explicitly authorized to purchase up to $4 billion of FHLBank debt.

JOINT AND SEVERAL LIABILITY

The legislation that created both the FCS and the FHLBS assigned "joint and several liability" for debt among their respective members. That condition means that liabilities issued by any one member of the respective systems are the liabilities of all system members. Under favorable circumstances, such a provision effectively reduces investor concern about the default risk posed by the liabilities of any specific system member.

Risk and incentives The economic rationale for joint and several liability stems from its potential to increase asset diversification among members and, thus, its reduction in the probability of default on member liabilities. Each bank holds a portfolio of assets, in the form of loans, and largely finances those loans through issuing its own debt liabilities. The difference between the bank's assets and liabilities is the equity capital of the bank. The market values of assets and liabilities are risky and various types of economic events will affect each value differently. A member bank, for example, bears default risk in holding collateralized loans as assets. If an unexpected event reduces the value of the collateral below the value of the loan balance, a borrower may rationally choose to default. In that case, the bank institutes foreclosure proceedings. If the value of the collateral has declined substantially, then the value of the asset may be substantially less than the balance of the loan. If a common regional or macroeconomic event causes similar declines in the value of the collateral of many borrowers, the resulting defaults can cause the bank itself to become insolvent.

Investors are aware of the danger posed by such default risk on the debt liabilities issued by the bank. Relative to par, the value such investors will bid for the bank's liabilities will fall as the perceived risk of the assets held by the bank increases, and the investors will demand higher interest rates from the bank. To the extent that investors' perceptions are unable to differentiate degrees of risk posed by different banks, they rationally will assume that bank owners will take advantage of that inability and hold relatively risky portfolios of loans. Less risky banks, consequently, will be unable to signal their prudence to investors under such circumstances, and will pay higher rates than would be economically efficient. That causes a loss to both investors and the owners (shareholders) of the relatively less risky banks.

Because less risky banks cannot signal their prudence to investors, the investors will assume that the banks hold risky loan portfolios.

That poses a tradeoff to the shareholders of the bank. Because equity shares are essentially options on the assets of the bank, share values rise as the riskiness of the portfolio of assets held by the bank increases. Consequently, shareholders gain as the bank selects riskier borrowers to whom to loan funds. If lenders to the bank are aware of the risky lending policy by the bank, however, the bank will pay higher yields to its lenders, which reduces the value of equity held by the shareholders. But the market will discipline risk-taking by banks only to the extent that information about the riskiness of the bank's assets is available to investors who purchase the bank's debt liabilities.

If such information is available, shareholders will have an incentive to reduce asset risk. They will do so by diversifying loans across classes of borrowers whose collateral values are relatively independent of the effects of adverse economic events. Although a single bank may be limited in the extent to which it can diversify its assets and lower the perceived risk of default, the reduction achieved by diversifying liability across a set of individual banks may be much higher, particularly if the value of the assets held by each bank is relatively uncorrelated with the value of those assets held by other member banks. Under ideal conditions, each bank would pay lower borrowing costs to fund its acquisition of assets by belonging to such a "joint liability" system rather than by operating independently.

Options and guarantees The benefits of mutual diversifica-

tion through joint and several liability can be examined in terms of the options a member bank receives from, and grants to, other banks in the system. When other banks assume liability for the debt issued by a specific member bank, that bank receives a partial loan guarantee, or "put" option on its liabilities, from all other member banks acting collectively through the system. The put option allows the shareholders of the specific member bank to borrow at lower cost from its own lenders. The specific member bank must also grant or "write" an analogous put option to every other member of the system, promising its own equity capital to repay the balance of outstanding debt to other members' creditors should those other members experience a decline in the value of their assets. The shareholders of a specific bank will then have an incentive to increase the riskiness of the loans their bank makes, in order to increase the value of the put option implicit in their loan guarantee from the system, if doing so is unobserved by others.

To the extent that the banks collectively hold liability for their joint debt, and to the extent that the riskiness of each member's portfolio of assets can be observed or monitored by the other members, the incentives inherent in such reciprocity will lead each bank to choose a relatively moderate level of risk in the portfolio of loans it makes. That moderation is enhanced to the extent that the system as a whole, or an outside agency, places restrictions on the types of loans or other assets that are admissible for the members to hold.

Moral hazard Two prerequisites exist for a moderate level of default risk to be chosen by each member of a "joint and severally liable" system:

- The ultimate liability for all the debt issued by members of the system rests with the shareholders of those members.
- The degree of risk posed to the system by the assets held by any member bank can be observed or inferred by all others.

If those prerequisites are unsatisfied, the incentives of each member to increase the implicit value of its equity shares, by increasing the value of its put option or communal guaranty on the risk of its loan portfolio, will be enhanced. If the loans were relatively opaque and their risk largely unobservable to outsiders, the banks rationally would perceive that they could increase the value of the put option they held without incurring a reciprocal response, or a regulatory response, by increasing the default risk of the loans made by their bank.

If each bank perceives itself to be in that situation, the total level of default risk of all the assets held by member banks will increase as each attempts to take advantage of its peers in the system. Apart from a regulatory reaction, the only inhibition to continual increases in asset risk is the ultimate response by investors lending to the member banks as a whole. Because all the member banks must compete for funds with other financial institutions and other investment opportunities, an increase in system-wide risk perceived by external lenders to the member banks will limit the ultimate expansion in asset risk, albeit at a suboptimally high level.

The incentives of external lenders to require additional compensation for the increased risk inherent in each member's liabilities depend on the system as a whole actually bearing liability for the total debt issued by the system. If an external guarantor of the debt grants the system a put option, then external lenders will realize that the debt of each bank enjoys a more substantial guarantee than the system itself will generate, and they will lend to member banks at lower interest rates. Moreover, if the external guarantor charges each member bank a fee less than the market value of the option to each member, the shareholders of those member banks will again rationally wish the bank manager to further increase the default risk of the loans the bank extends as assets. The removal of liability for its collective debt from the members of the system will then remove considerations of reciprocity and lead to a simultaneous, and possibly substantial, increase in the riskiness of each member's loan portfolio, and consequently to the riskiness of the system as a whole. If the external guarantor is the federal government, the increase in risk is borne by taxpayers and represents an inefficient transfer of wealth from taxpayers to the shareholders of the member banks.

FCS's problems The historical experience of the FCS illustrates the potential for moral hazard and increased risk-taking in a system with joint and several liability. Although individual federal farm land banks originally issued FCS bonds, Congress, in the 1971 Farm Credit Act, allowed banks to issue FCS-wide securities, ostensibly in order to improve creditor perceptions of liability and reduce issuing costs. That led to a significant increase in borrowing by members of the FCS and, eventually, to a response by investors in bond markets leading to a substantial spread in yields between farm credit securities and comparable Treasury instruments.

Although Congress hailed the act as providing a more competitive FCS, both the capacity for moral hazard by FCS members and their attempts to restrain it through cartelization of agricultural credit were observed at the time. As agricultural economist David Freshwater explained,

> As long as joint and several liability is in place, a fairly strong incentive to mute competition exists, but it could be overwhelmed by pressure to increase market share or maintain loan volume in a low-demand period. As a result, the FCS may soon experience its own version of the tragedy of the commons if individual banks determine their share of the exposure to losses is less than the potential gains from predation.

Implications of the FCS experience for the FHLBS are obvious. The FHLBS also enjoys joint and several liability. A common perception exists among bond investors that the debt of the FHLBS has an implicit guaranty from the U.S. Treasury. Most importantly, the FHLBS exhibits a lack of transparency about both the ability of individual FHLBanks

to influence the issuance of system-wide debt and, in light of the decentralization of solvency stress testing to individual FHLBanks, about the individual riskiness of each of the member FHLBanks.

CAPITAL REGULATIONS

Similar to other regulated intermediaries, each FHLBank traditionally has been required to hold capital in order to protect its creditors in the event of financial distress and to protect any guarantor of its debt. Assets comprising that capital are retained earnings and non-traded equity shares. That latter asset, which has been substantially modified by Gramm-Leach-Bliley, is the primary source of capital for each FHLBank and for the FHLBS as a whole.

The banks now issue two types of shares: Class A and Class B. Class A shares have a par value and issue price of $100 and pay a dividend that has priority over any dividend payments of Class B shares. Although Class A shares cannot publicly trade in stock markets, they are redeemable, at par, upon a maximum of six months' written notice to the issuing FHLBank. Class B shares likewise are unable to trade publicly, and are also redeemable at par, but with a maximum of five years' written notice. Class B shares can also pay a subordinate dividend to holders. Each FHLBank's permanent capital is comprised of the sum of the amounts paid in for Class B stock plus retained earnings. Total capital consists of permanent capital plus amounts paid in for Class A stock, plus general loss allowances.

Stock redemption As with the farm mortgage FCS, the nature of the equity issued by the home mortgage FHLBanks is problematic for both FHLBS capital regulations and in the capital regulations governing each of its members. While each FHLBank member holds stock, the book value of the shares is counted as capital for each bank by the Federal Housing Finance Board (FHFB), which succeeded the FHFBB. The shares are also counted as capital for each member. That practice has three immediate implications for solvency risk throughout the FHLBS:

- If an FHLBank is perceived as entering a period of financial distress, members of that FHLBank would clearly have an incentive to request redemption of their shares, and it would be politically difficult for the FHLBS to deny such redemption.
- Bank members could be joined by member banks and thrifts of other FHLBanks, owing to the externality borne by them through joint and several liability. Consequently, an FHLBank could experience a "run" on its shares, and that could be contagious across the entire FHLBS. That bears close similarity to the events in the FCS in the mid-1980s.
- If an FHLBank experienced actual insolvency, its remaining capital would be depleted from each of its member banks and thrifts on a one-for-one basis, transferring the resulting insolvency risk directly to the Bank Insurance Fund.

Portfolio deregulation The FHLBanks traditionally have acted as sources of short-term credit for member institutions by providing members with advances, which were short-term loans collateralized with residential mortgages held by the members. The short maturity and collateralization provisions made the advances relatively immune to either credit or interest rate risk. The collateralization requirements included that members purchase FHLBank stock in proportion to the value of their advance and, in addition, the FHLBank has priority status as a creditor in the event of default.

The Gramm-Leach-Bliley Act dramatically revised those requirements. The act dropped the mandate that residential mortgage loans represent at least 10 percent of assets for insurance companies and "community financial institutions." It also replaced previous requirements that member institutions partially collateralize their advances by purchasing a proportional amount of FHLBank stock. Gramm-Leach-Bliley expanded the permissible assets that can be used to collateralize advances to include small business, small farm, and agribusiness loans. Finally, the act effectively deregulated the range of assets FHLBanks can hold in portfolio by allowing FHLBanks to engage in risk-sharing arrangements with their member institutions through implicit swaps and puts on residential mortgages.

An example of the risk-sharing innovations promoted by Gramm-Leach-Bliley is the Mortgage Partnership Finance Program (MPF), which allows the sponsoring FHLBank to acquire long-term, fixed interest rate residential mortgages and to hold them as assets in portfolio, while offsetting a portion of the credit risk of such mortgages through the purchase of a guarantee from the originating member on a certain portion of the potential loss from default. Although based on a potential comparative advantage of the member bank or thrift in mitigating adverse selection among residential mortgage borrowers, and that of the FHLBank in mitigating interest rate risk, the MPF program allows the shareholders of members to increase the value of their equity by having the residential mortgages appear as assets on the balance sheets of the sponsoring FHLBank rather than on the balance sheet of their bank or thrift. While that is a source of wealth to the shareholders, it exposes the FHLBank to credit and interest rate risk to which it had not, prior to Gramm-Leach-Bliley, been exposed. That exposure, in turn, increases the risk borne by taxpayers and enhances the value of the guarantee to the same shareholders. Programs like the MPF can, and will, be rationalized in terms of additional liquidity provided to primary mortgage lenders in exactly the same way that deregulation of covenants on the Federal Land Banks of the FCS were rationalized after the 1971 Farm Credit Act.

Farm credit crisis The major reforms for the FCS began with the Farm Credit Act of 1971, which provided the FCS with an updated charter that decentralized power and decision-making in the system. Foreshadowing Gramm-Leach-Bliley, the act also deregulated the FCS by raising the loan-

to-value ratio to 85 percent of appraised or current market value for FCS lenders. The land banks were allowed to make loans to nonfarm rural homeowners, and their required percentage of farmer-members was reduced to 80 percent (and later to 70 percent).

In September 1985, the governor of the FCS announced that the system would lose money and might require $13 billion or more in government assistance. Wall Street investors quickly communicated to government officials their concern that the failure of a government-supported enterprise like FCS could critically affect the housing market, as well as lead to overall instability in financial markets. Congress responded by restructuring the FCS to be an "arm's length" regulator with increased supervisory power, rechartering the Capital Corporation as a specialized bank to deal with nonperforming loans for the entire FCS, and approving a line of credit to signal protection in the event the FCS was unable to meet its obligations. Other pieces of legislation followed in 1986, but all of them failed to resolve the farm crisis. In response, Congress created a Farm Credit System Financial Assistance Corporation in 1987 that was authorized to sell up to $4 billion in U.S. government bonds to assist FCS institutions. The corporation ultimately issued $1.26 billion in bonds.

CONCLUSION

The FHLBS was created during the Great Depression with a mission of enhancing liquidity for residential mortgage lenders by providing a ready source of advances to members of each FHLBank. The FCS was created two decades earlier, but with an analogous mission. In both cases, the economic rationale came from a perceived failure in mortgage markets, resulting in a lack of capital despite the potential existence of efficient lending opportunities. Both systems shared the provision of joint liability, a lack of transparency regarding the individual portfolios of their members, a mutual ownership structure relying on non-traded borrower stock for capital, and an implicit or explicit external guarantee on system debt.

Both systems also experienced legislative deregulation of restrictions on the type of assets held by their members, and of their ownership structure. Less than a decade after major deregulation in 1971, the FCS experienced substantial financial distress and required substantial government recapitalization and reorganization. The FCS experience naturally raises concerns for the FHLBS. While the two systems may not enhance economic efficiency, they do contribute to the overall risk the public bears, through the perceived or real guarantee that the Treasury extends to the collective debt of both systems. Lacking transparency, that public risk is an inefficient transfer of wealth from taxpayers to the shareholders/owners of the member institutions. Unless such a guarantee is priced efficiently, the cost will be borne by taxpayers regardless of whether an actual bailout occurs.

Joint and several liability of the FHLBanks, given the scope for moral hazard on the part of each FHLBank, inevitably will boost the incentives to increase the riskiness of their portfolios. Capital regulations required by Gramm-Leach-Bliley and implemented by the FHFB fail entirely to address the issue of transparency, while simultaneously increasing the externality created by joint liability by specifying redeemable stock as the primary form of capital held by each FHLBank. Relaxation of the restrictions on the portfolios of the FHLBanks, which have given rise to innovations such as the MPF program, exacerbate the scope for moral hazard by allowing the FHLBanks to hold increasingly risky assets. Finally, restrictions on the ability of individual FHLBanks to diversify their holdings will, in a second-best environment, diminish economic efficiency by both restricting the regulatory incentives to diminish portfolio risk and reducing competition among the extant FHLBanks. R

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