How Much Did Capital Forbearance Add to the Tab for the FSLIC Mess?*

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ABSTRACT

Federal regulators of depository institutions characterize capital forbearance as an efficient way of nursing weak banks and thrifts back to health. An alternative hypothesis is that forbearance reflects inefficient costs of agency that harm federal deposit-insurance funds.

Agency costs are possible because allowing divergences between regulatory measures of a troubled institution's net worth and those of GAAP and market value relieved FSLIC from having explicitly to acknowledge the depth of the industry's unbooked losses. This let FSLIC avoid booking the de facto encumbrances that industry losses were imposing on the FSLIC fund, an omission that enhanced the reputations and careers of top officials.

Delayed insolvency resolution intensified FSLIC exposure to future losses by distorting management and risk-taking incentives and squeezing profit margins for surviving thrifts. For decapitalized institutions, the downside risks from new investments fell predominantly on their federal guarantor. This gave them an incentive to bid overaggressively both for additional deposits and for risky projects. Besides directly assigning projects with negative net present value to FSLIC, the bidding hurt FSLIC indirectly by undermining the overall profitability of the industry it insured.

This paper uses methods of synthetic market-value accounting to measure the opportunity cost of FSLIC forbearance during 1985-1989. Although these measurements show that this opportunity cost did not increase in every single year, it did increase by about $8 billion per year on average.

Had opportunity-cost standards of capital adequacy been routinely enforced, FSLIC guarantees would not have displaced private capital on a mammoth scale and surviving members of the industry would have proven more profitable. Resulting reductions in hidden tax liabilities for households and in hidden subsidies to risky lending

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would have speeded the disinflation process and left the U.S. ex post with a more valuable capital stock.

I. Introduction

In financial usage, forbearance describes a policy of leniency or indulgence in enforcing a collectable claim against another party. Deposit-institution regulators engage in capital forbearance when they do not follow a workout policy that preserves the opportunity-cost value of the deposit-insurance enterprise. Value preservation requires that recognizable shortages of private ownership capital at decapitalized institutions be "resolved" in quick order either by explicit injections of private or government ownership capital, by government takeover, or by liquidation.

In the late 1970s and 1980s, troubled institutions were almost never resolved when they first became insolvent. On average, Cole (1993) finds that thrifts resolved during 1980-88 had been insolvent on a GAAP accounting basis for roughly 18 months. Kane (1987), Kaufman (1987), Brumbaugh (1988), Barth (1991), and others have argued that FSLIC (the Federal Savings and Loan Insurance Corporation) adopted forbearance as a strategy of regulatory gambling that sought to buy time to expand opportunities for growth and good luck to make crippled thrifts well again.

Federal regulators of depository institutions characterize capital forbearance as an efficient way of nursing weak banks and thrifts back to health. Eisenbeis and Horvitz (1993) survey the literature on optimal supervisory closure policies. This literature shows that prompt closure is not always the optimal response to insolvency.

But nonclosure is not the same thing as lenient treatment. In allowing an insolvent institution to operate as a "zombie," the insurer accepts responsibility for the zombie's further losses. Accepting this downside exposure cries out for a quid on the upside. It is doubtful that a credible model can be constructed in which it would be optimal ex ante for a private insurer not to resolve a zombie's insolvency explicitly by insisting on warrants or other enforceable claims to a share of the institution's future equity growth. Kane (1987, 1989) characterizes the let-it-ride speculative strategy followed by FSLIC as a poorly balanced bet. Both ex ante and ex post the strategy rewarded managers and owners of a few lucky institutions and increased the aggregate bill to taxpayers for resolving insolvencies.

Analysis of the cost and benefits of FSLIC forbearance has begun to narrow this disagreement. Bartholomew (1991), DeGennaro and Thomson (1992), and Benston and Carhill (1992) each analyze the ex post costs of FSLIC forbearance.

For 1130 thrifts that were resolved during the period 1980 through 1990, Bartholomew (1991) compares ex post resolution costs with projected costs of prompt regulatory intervention. Bartholomew's calculations assign substantial cost to forbearance policies, but neglect potential benefits to FSLIC from gambles placed on troubled thrifts that managed to return to health. Studying costs of forbearance only for failed thrifts creates a selection bias because FSLIC's gains from insolvent thrifts that manage to recover are systematically excluded. Although accounting for this class of net returns could lower estimated net costs of forbearance, gains accruing to recovering thrifts flow disproportionately to private stakeholders.

DeGennaro and Thomson (1992) avoid selection bias by studying longitudinally the fates of 952 thrifts that failed to meet regulatory capital standards at the end of 1979. They, too, find a cost discrepancy ($6 billion to $12 billion) between a hypothetical strategy of prompt resolution and the present value of the delayed resolution costs experienced in these thrifts. Their sample's starting date seems aptly chosen, in that it

captures the immediate effect on thrift net worths of the increased interest volatility created by the Volcker Fed's post-October 6, 1979 attack on inflation and precedes 1980 and 1982 legislation that intensified supervisory forbearance. Nevertheless, whether earlier or later starting dates might produce different qualitative results is an open question. It is particularly desirable to confront White's self-exculpating claim (1991, p. 141) that "by 1986 it was too late for the FSLIC to cut its losses by much."

Although Rudolph (1989) does not measure forbearance costs per se, her work may be interpreted as showing that DeGennaro and Thomson's results may be insensitive to a 3-year delay in starting point. She finds that, by 1987, of 237 thrifts that were insolvent by Generally Accepted Accounting Principles (GAAP) in 1982, 92 had been merged or closed and 77 more remained insolvent and still supported by government-contributed capital. Only 68 had regained GAAP solvency, and some of these had done so (as a nonforbearance policy would have required) by raising external capital.

These studies measure a thrift's initial capital shortage by accounting standards. Many thrifts that were book-value solvent during FSLIC's last decade could be proved to have been economically insolvent by more comprehensive methods of measurement. The effects of using still-later starting dates and a more-inclusive market-value standard for solvency is investigated in Benston and Carhill (1992) and in this paper. Analyzing forbearance costs with data from 1985-1989 Thrift Financial Reports, Benston and Carhill interpret regression evidence to support regulators' presumption that, as a way of nursing hundreds of damaged thrifts back to health, forbearance proved ex post to be a profitable strategy for taxpayers. The heart of their argument is demonstrating that many troubled institutions chose not to pursue excessively risky strategies.

This paper uses the same data source as Benston and Carhill, but measures aggregate opportunity costs of forbearance directly. A narrative description of capital adequacy restrictions for U.S. thrifts is presented in Section II. How to benchmark an appropriate loss-resolution strategy is discussed in Section III. The data set is introduced in Section IV. Methods for constructing synthetic market-value measurements are described in Section V. Opportunity costs of FSLIC forbearance are compiled in Section VI. Finally, Section VII provides a summary interpretation of the results.

II. Narrative Summary of Capital Adequacy Policies for U.S. S&Ls

Between 1965 and 1982, an unanticipated secular rise in interest rates imposed significant opportunity losses on most thrifts. These losses came mainly from unbooked declines in the market value of long-term, fixed-rate mortgage loans. By 1982, 415 thrifts reported themselves to be insolvent on a tangible historical-cost basis. Setting aside the intangible value of the taxpayer guarantees that insolvent thrifts enjoyed, many more thrifts could have been shown to be insolvent on a marked-to-market basis.

The Federal Home Loan Bank Board (FHLBB) and FSLIC were slow to acknowledge and treat the extent of economic insolvency among thrifts. To help insolvent thrifts to avoid failing regulatory tests for capital adequacy, FHLBB authorized the booking of inflated amounts of goodwill in supervisory mergers, eased capital requirements and authorized cosmetic accounting entries. The Bank Board lowered book-value net worth requirements, from 5 percent to 4 percent in November 1980 and lowered them again to 3 percent in January of 1982. In 1981 and 1982, the Bank Board authorized adjustments in Regulatory Accounting Principles (RAP) that allowed thrift net

worth to be reported substantially more leniently than GAAP (Generally Accepted Accounting Principles) would have required. Divergences between net worth as measured by RAP, GAAP, and market value relieved FSLIC from explicitly having to acknowledge the depth of the industry's unbooked losses (White, 1990) and made it easier for FSLIC itself to avoid booking the de facto encumbrances that these losses imposed on the FSLIC fund.

Not resolving insolvencies as they developed not only failed to erase FSLIC's accumulated losses, delayed insolvency resolution intensified its exposure to future losses by distorting risk-taking incentives (Buser, Chen, and Kane, 1981) and narrowing profit margins at surviving thrifts. Decapitalized institutions face incentives to bid overaggressively for additional deposits and for risky projects. For a deeply troubled deposit institution, the downside risks of new investments fall predominantly on its guarantor. Besides directly accruing projects with negative net present value for FSLIC, this bidding also hurt FSLIC indirectly by undermining the profitability of the entire industry it insured.

In the early 1980s, two pieces of legislation expanded opportunities for an insolvent firm to gamble its way out of a capital shortage. The DIDMCA (Depository Institutions Deregulation and Monetary Control Act, 1980) and the DIA (Garn-St Germain Depository Institution Act, 1982). This legislation relaxed restrictions on deposit interest rates and authorized new thrift lending and investment activities. The new environment made undercapitalized thrifts more dangerous than ever for the FSLIC fund. Making decapitalized institutions freer to compete for out-of-region deposits and to take risks in new ways demanded tighter rather than easier supervision. Even though corporate finance theory predicts that lenient treatment of decapitalized zombie thrifts would encourage looting and high-risk lending, regulators gambled that zombie managers could be relied upon to find a safe way to grow out of their problems. Although it was the effect of interest volatility on residential mortgage loans that initially pushed the industry into deep insolvency, interest-rate volatility declined greatly after 1983. By then, credit risk in thrift assets had become a mounting problem. Repayment difficulties proved especially acute for loans and investments in commercial real estate.

III. Advantages of Using a Market-Value Threshold for Insolvency Resolution

Direct costs of forbearance depend on assumed supervisory strategies for disciplining and correcting institutional insolvencies. This paper develops opportunity cost estimates relative to a straightforward strategy: any insured firm is to be promptly recapitalized, sold, taken over, or closed whenever the market value of its tangible net worth fails to exceed zero. An even better criterion would set the threshold for capital correction equal to the sum of administrative costs the insurer faces in disposing of institutions with the selected capital ratio. Except that the insurer's average disposition cost should decrease as a firm's net capital position rises, costs of forbearance can be benchmarked straightforwardly on either assumption.

Our hypothetical benchmark is consistent with corporate-finance principles and embodies the market-value recommendations and prompt-corrective-action provisions contained in the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA, U.S. Public Law 102-242, December 19, 1991). Prompt-corrective-action provisions seek to limit regulatory discretion to forbear. FDICIA mandates prompt

intervention to resolve undercapitalized situations and insists that closures be financed at the "least possible cost to the deposit-insurance fund." Prompt regulatory action seeks to eliminate zombie institutions by pushing banking authorities toward the closure patterns that an efficient private guarantor would enforce. Prolonged delays in corrective action made FSLIC into an implicit "investor of last resort." FSLIC's injections of badly structured equity capital permitted zombie S&Ls to bleed industry profit margins and FSLIC itself.

IV. Data Source

Thrift Financial Reports are financial statements which every member institution was required to file with the Federal Home Loan Bank Board (FHLBB or Bank Board). Reports were submitted semi-annually from 1977 through the end of 1983 and submitted quarterly beginning in March 1984. Report content and format were revised frequently by the Bank Board and its successor institution.

This study analyzes quarterly reports filed from 1985 through 1989. Study endpoints are dictated by difficulties in adapting the 1984 format to our purposes and by the August, 1989 demise of FSLIC. During the focal 1985-1989 period, three reporting formats may be distinguished: the 1985 and 1986 formats; the 1987 and 1988 formats; and the 1989 format.

End-of-quarter data on thrift assets, liabilities and capital are found in Section A, B and C of Thrift Financial Reports. Sections D and E provide income and expense data. Supplemental monthly data and information on interest rates paid and account balances are reported for selected types of deposits in Section F and G. Section H reports information on the time remaining before the yields on specific assets and specific liabilities contractually reprice. This section also states average contractual yields on different categories of assets and liabilities arranged by term to maturity. This last section first appeared in March 1984.

V. Market-Value Measurement

We use synthetic market-value accounting methods developed in Kane and Yu (1992) to benchmark the effects of the hypothetical market-value resolution strategy and to estimate losses imbedded in every thrift operating insolvently at five reporting dates.[1] Neglecting the cost of liquifying the various positions, current values for the major components of thrift asset and liability portfolios are estimated at each reporting institution and aggregated across its balance sheet to obtain a synthetic measure of net worth for each FSLIC-insured thrift. The objective is to execute, as far as reporting limitations permit, a present-value discounting of returns that could rationally be projected from reported cash flows for assets and contractual cash flows for liabilities. An asset's reported cash flows respond to both interest-rate movements and credit problems. Contractual cash flows are used in valuing liabilities on the hypothesis that their occurrence is more secure. Their discounted value is affected mainly by movements in interest rates and only marginally by changing fears of nonperformance. Insured S&L

[1]The valuation procedure projects and discounts returns across an S&L's balance sheet. An appendix is available from the authors that describes portfolio categories and some sensitivity experiments that show that the time pattern of our results is insensitive to broad variations in our valuation procedure.

liabilities are free of credit risk, while the market's understanding of forbearance policies greatly reduced the default risk perceived for uninsured obligations.

This study classifies assets into eleven portfolio categories ("subportfolios") and liabilities into five subportfolios. The timing information provided in Section H is used to partition each subportfolio into eight finer maturity/repricing subportfolios, each ranked according to the remaining time either to maturity or to repricing. Assets and liabilities in each maturity/repricing subportfolio are assigned a putative maturity equal to the midpoint of its maturity/repricing bracket. The midpoints of the eight maturity/repricing columns are 1.5 months, 4.5 months, 9 months, 24 months, 48 months, 90 months, 180 months and 300 months.

Asset Subportfolios

Eleven principal asset subportfolios are distinguished: Mortgage Loans and Contracts (MTG), Mortgage-backed Pass-through Securities (MBPT), Consumer Loans (CSL), Commercial Loans (CML), Financing Leasing (FL), Repossessed Assets and Real Estate Held for Investment (REOH), Service Corporations and Subsidiaries (SCS), Investment Securities (ATIS), Leased Property (LSO), Mortgage Loan Servicing (MLS) and Fixed Assets. This partition is dictated by limitations on our ability to match asset categories with actual or contractual cash flows reported in the Thrift Financial Reports. Rather than neglect items that cannot be matched with identifiable cash flows or putative price quotes, such assets and liabilities are carried at book value.

MTG and MBPT are treated as amortizing instruments subject to possible interim prepayment. Prepayments are assumed to occur at the end of each period. A 10 percent annualized prepayment rate is assumed for mortgage assets whose returns differ from current mortgage yields by no more than one-hundred basis points. Prepayment rates of 20 percent and 5 percent are assumed for mortgage rates whose contractual rate is respectively greater or less than the current market yield by one-hundred basis points or more. This assumption resembles procedures used by Brewer (1987) and Bennett, et al. (1986).

Loans in CSL, CML, FL and LSO and investment securities experience little prepayment. This study amortizes consumer loans, commercial loans and financing leases on the assumption of no prepayments. Investment Securities (ATIS) include government and agency securities, mortgage derivatives and equities. Since most of these securities are nonamortizing, their current values are measured by discounting coupon flows at a designated market rate of return. Prepayments are also excluded on investment security subportfolios.

The values of both real estate subportfolios, REO and REOH, are marked up or down by percentage movements in a price index for commercial real estate. The price index used is compiled by Frank Russell Company, as reproduced by White (1989, 1990). Because this index substantially understates rational estimates of the decline in collateral values during 1985-1989 (Hendershott and Kane, 1993), this is a lenient mark-to-market procedure that tends to shift some asset-revaluation expense into disposition costs.

Market rates of return are required to discount projected cash flows. We conceive of market rates of return as rates of return that industry members could feasibly earn on designated subportfolios. This conception lets us treat market rates of returns as benchmark estimates of opportunity-cost rates of return that can be earned on specific

assets. Assets that underperform the feasible return are considered to experience a partial default, while assets that outperform the feasible return are marked up proportionately.

One feasible industry benchmark is the average rate of return on asset subportfolios for all reporting institutions. At a time when many members of the industry are amortizing unbooked losses, industry averages can understate return possibilities for healthy firms. Taking the opportunity-cost rate as the average return earned by well-capitalized thrifts strikes us as a sounder procedure than averaging subportfolio returns for all thrifts. Focusing on well-capitalized thrifts excludes distortions in reported returns from present and past excess risk-taking by zombie thrifts. Our preferred method defines as well-capitalized any thrift whose tangible net worth ratio exceeds 6 percent of assets.

Liability Subportfolios

Liabilities are classified into five categories: Borrowings, Interest-Bearing Fixed-Maturity Deposits, Noninterest-Bearing Accounts, "Core" Deposits, and Other Liabilities. The last two categories primarily consist of short-term liabilities and are assigned their book values. Discounted cash-flow methods assign market values only to the other three groupings.

Just as we partitioned asset subportfolios, we subdivide each liability subportfolio into eight maturity subcategories. Each "basis" subportfolio corresponds to the intersection of a single maturity/repricing column in Section H with a single liability-category row. The midpoint of each column is taken to be the maturity date. For each institution, each maturity/repricing subportfolio is assigned a calculated weighted-average contractual return.

The discount rates used incorporate two primary influences: interest-rate movements and changes in the value of issuing institutions' options to default. Even for uninsured liabilities, movement in default probabilities is substantially restricted by authorities' known preferences for delaying failures and for utilizing "live-thrift" purchase and assumption transactions to dispose of failed institutions.

At each repricing date, the interest rates that well-capitalized thrifts offer on new large CDs are taken to be the opportunity cost rates of thrift liability portfolios. Source documents define new-CD rates as interest rates offered by thrifts in the last seven days of each reporting quarter. For well-capitalized institutions, new CDs constitute a ready funding substitute for other liabilities.

Most large CDs have an initial maturity of less than a year. The secondary market for CDs is reputed to lack depth beyond the 6-month maturity. For these reasons, proxy interest rates have to be developed with which to discount the cash flows placed in the windows spanning months 9 through 300. A proxy CD yield curve is constructed in two steps. First, at each reporting date, a spread is calculated between the CD rate of the longest maturity then observed and a Treasury yield of corresponding maturity. Data given for the longest secondary-market CDs are placed at 6 months and for new large CDs at 9 months. A series of longer yields are generated by adding calculated spreads to points on the Treasury yield curve from months 6 or 9 on. Treasury-yield-curve data are interpolated from the constant-maturity series published in the Federal Reserve Bulletin.

Cash flows projectable for the Borrowings categories are relatively well-defined contractually. The implied cash flows are discounted at the CD yield assigned to that maturity window. Possibilities of prepayment are ignored for borrowings. As with all other adjustable-rate instruments, in each repricing/maturity column, long-term

adjustable-rate borrowings resemble short-term fixed-rate borrowings in repricing behavior. Reported balances are treated as fixed-rate borrowings which either compound annually at the reported contractual rate or accumulate simple interest if the term is a year or less. As with assets, maturity dates are benchmarked at the midpoint of each repricing column. It is assumed that, at maturity, accrued interest is credited and the entire balance withdrawn.

Interest-Bearing Fixed-Maturity Deposits

Balances of interest-bearing, fixed-maturity deposits are divided into large and small CDs. Small CDs differ from large CDs in contractual interest rates and in possibilities for early withdrawal. Small CDs are defined in this study as CDs with balances of less than $100 thousand; large CDs are defined as those with balances of $100 thousand or more. Small CDs are explicitly insured in full and brought in chiefly through an institution's retail network. Insurance on large CDs is predominantly implicit in character (Thomson, 1987).

We use distinct yield curves for small and large CDs to assign market values to these instruments. Large CDs generally show higher contractual interest rates than small CDs. In early 1987-1989, the average discrepancies are 19.9 and 17.7 basis points for 4.5 months and 9 months respectively. Implicit interest expense represents a notable portion of the cost of servicing small CDs. Differences of 15 to 20 basis points could represent quasi-rents, but might be easily attributed to: (1) the improved insurance status of small CDs and (2) higher operating costs of maintaining, closing and opening accounts and of making interest payments on retail instruments.

However, small CDs differ from large CDs also in the option value banks must assign to early withdrawal opportunities. Small CDs are also less sensitive to interest-rate movements than large CDs are. Our calculations assume small CDs are never withdrawn early and large CDs are withdrawn once it becomes profitable for depositors to do so. Early withdrawal is profitable for large-CD holders whenever they can realize a net gain in value by paying the early withdrawal penalty on a below-market CD rate and reinvesting the balance at the current interest rate. In practice, the operative penalty formula generally required forfeiture of 3 months' interest for CDs whose maturities ran between 32 days and 1 year, and 6 months' and 9 months' forfeiture for maturities of 1 to 3 years and of more than 3 years, respectively. With information only on remaining maturity, our calculations conservatively assume that early withdrawal penalties require the respective forfeiture of: six-months interest for CDs with a remaining maturity less than a year; 9-months interest for CDs with a remaining maturity of 1 to 3 years; and one additional month of interest for each additional year (or fraction of a year) of remaining maturity beyond 3 years. For deposits that are withdrawn early, our methods assume savings institutions deduct the penalties and refinance the net balances at fresh CD rates.

Adding imputed market values across an institution's asset and liability subportfolios generates a net worth estimate that is designated here as "synthetic market-value net worth." Summary measures of the extent of synthetic market-value insolvency at FSLIC insured thrifts are reported in Table I. During the sample period, the number of market-value insolvent thrifts fluctuates between 23 percent and 37 percent of the industry. Line (3) shows that the sum of insolvent firms' negative market-value net worth peaked at the end of 1988. However, the annual cost of an unpaid 20 percent annual equity return (representing a conservative estimate of the cost of equity capital supplied

to zombie thrifts) should be cumulated into FSLIC's implicit investment position. Line (3c) clarifies that, even without keeping track of pre-1986 dividends, making this allowance helps push the cost of eliminating unresolved cases to higher and higher levels throughout FSLIC's last years.

VI. Measuring the Opportunity Costs of Forbearance

To determine the opportunity costs of FSLIC forbearance, we must track the net "waiting costs" generated by rolled-over forbearance based on the hypothetical costs of following a putatively optimal strategy of insurer loss control. In principle, the benchmark for optimal loss control is what a prudent private creditor or guarantor would require in similar circumstances.

Creditors in U.S. deposit institutions cannot draw on the protection of bankruptcy courts. It is reasonable to hypothesize that a prudent private insurer would demand --as the FDIC Improvement Act of 1991 now requires-- that as insolvent firms approach insolvency, they either recapitalize promptly or surrender most (if not all) of their ownership claims to the insurer. If a firm facing such a capital directive were to fail to raise sufficient capital in short order, the insurer would either liquidate it, sell it to a third-party acquirer, or greatly dilute the proportion of future profits that the institution's original stakeholders could subsequently claim.

The optimal disposition strategy is what the FDIC Improvement Act of 1991 approximates as the "prompt" and "least-cost resolution" of an institution's insolvency. A private guarantor would never liquidate an institution whose value as a going concern -- abstracting from capitalized deposit-insurance subsidies-- substantially exceeded the marked-to-market value of its tangible asset and liability positions.

The accounting literature describes the difference between a firm's worth as a going concern and the marked-to-market value of its GAAP balance sheet as intangible "goodwill." The finance literature describes this difference as "franchise value." Both literatures treat this difference as the present discounted value of excess earnings (quasi-rents) that the firm can earn on its balance sheet because of its having previously expended resources to develop a loyal customer base, excellent office locations, special management skills, or future opportunities to innovate.

A prudent private insurer would defer resolution only when it deemed an institution to be both too valuable to liquidate and too inconvenient --given insurer illiquidity, asset and franchise disposition costs, and the press of transacting other business-- to sell off at the moment. In cases of deferred resolution, efficient loss-control would assign the insurer a well-structured contractual claim to potential future returns. This claim would be formalized either in new stock shares or in warrants. The equity returns that FSLIC passed up in not staking an optimal equity position for itself are an important implicit cost of its forbearance strategies. FSLIC forbearance provided **dividend-free equity** to very risky firms and even to Ponzi operations. The cost of this equity is best accounted, as Table I does, at appropriate equity rates of return and not (as DeGennaro and Thomson conservatively do) at interest rates on government bonds.[2] Thrifts whose insolvency was hidden were free to pay interim dividends to private "owners" and to pay generous wages to managers during the forbearance period. It is

[2]Of course, bond rates may be used (as DeGennaro and Thomson do use them) to discount late-dated expenses back to an earlier date.

particularly important to book the opportunity cost of FSLIC equity in cases where thrifts eventually returned to profitable operation without explicit assistance. The inability of FSLIC to capture more than a fraction of the winnings recovering thrifts accrued is precisely what made capital forbearance so costly to taxpayers.

When going-concern value exists, the hypothetical benchmark of prompt liquidation overstates the costs of optimally disposing of a thrift's losses. On the other hand, in cases where forbearance has been granted, recorded disposition costs fail to include the opportunity cost of the equity the government provided to failed and recovering thrifts during their period of extended insolvency. Additional, but indirect, costs of forbearance come from loss exposures imposed on the FSLIC fund due to reductions in ex ante profitability that forbearance causes for all deposit institutions. In what follows, we analyze how inferences about the ex post benefits of forbearance vary as these additional value adjustments are introduced.

A. Estimating the Costs of Prompt Resolution

Liquidation requires FSLIC to absorb all embedded net worth shortages and to incur additional costs of asset disposition. Taking over and disposing of thrift assets or franchises generates a substantial amount of marketing, litigation, and administrative expense. Disposition costs comprise all losses incurred in resolutions beyond those that come from the necessity of marking positions to market as they are sold. Brown and Epstein (1992) show that at a sample of 1986-88 bank receiverships, these costs tend to be low on securities and highest on owned real estate and instalment loans.

Properly accounted, the biggest component of potential disposition costs for forbearance S&Ls would probably be fire-sale losses on poorly performing assets. The second-biggest would probably be defending FSLIC from lawsuits filed by stakeholders in failed thrifts. The pressure of resolving large number of insolvencies at high speed would dispose FSLIC personnel not only to make reasonable price concessions, but to make potential errors of law and unreasonable concessions that reflect carelessness and misinformation. Auction theory indicates that the extent of price concessions would fall with the number of interested bidders.

Lines (7), (9), and (10) of Table I assume that per-dollar rates of asset disposition trend upward year by year. Even though Barth, Bartholomew, and Bradley (1990) find that the duration of tangible insolvency is the most significant determinant of FSLIC resolution costs, constant FSLIC disposition costs have previously been used by Kane and Yu (1992) and DeGennaro and Thomson (1993). DeGennaro and Thomson deduct 0.5 percent of total assets for administrative and legal expenses in prompt resolutions. They arrive at 0.5 percent by conservatively dividing FSLIC's reported direct insurance settlement and administrative expenses for FSLIC in 1985 and 1986 by total failed thrift assets in 1985 and 1986 respectively.

FSLIC's estimate includes no allowance for the present value of litigation expense or for fire-sale losses. There is reason to believe that resolutions undertaken in these and most earlier years may have been much simpler to execute than the insolvencies that FSLIC chose to defer.

James (1991) found that legal and administrative expenses associated with bank closures averaged 10 percent of book-value assets for the FDIC from 1985 through mid-year 1988. In correspondence, Thomson has argued that this number is far too high. He

calculates the entire legal and administrative expense of the FDIC during James' sample period as only 3.5 percent of failed-bank assets. It seems likely that some of the expenses James classifies as "administrative" must be embedded losses realized formally as marketing expense in failed-bank receiverships.

Kane and Yu (1992) employ James' 10 percent assumption, and, with DeGennaro and Thomson, incorporate one class of fire-sale losses into the market valuation process. This is done by applying price discounts that reflect transactions costs and delays one must anticipate in selling nonfinancial assets such as furniture, fixtures, and equipment (FFE) and poorly documented real estate assets, REO and REH.

To allow for intangible franchise values that might be realized in the subset of resolutions effected by purchase-and-assumption transactions, we propose to add back one percent of the book value of assets. We hold this to be a generous allowance for several reasons. First, before 1989, reported takeover bids and goodwill allowances were biased upward by the intangible value of federal deposit-insurance guarantees and by benefits from tax-loss carryforwards and other tax writeoffs putatively being transferred to acquirers. Second, the quality of bank asset management and the loyal customer base that underlie franchise values tend to erode once an institution's durability comes into question. DeGennaro and Thomson (1992) cite a Resolution Trust Corporation (RTC) report that, for the 651 nonliquidating resolutions RTC assisted between April 10, 1992 and its inception in August 1989, the average purchase premium over the market value of tangible assets in successful bids averaged only 2.05 percent of so-called core deposits (those under $80,000 in denomination). Credit standards deteriorate, talented employees depart, and core deposits tend to shrink relative to total assets as an institution becomes insolvent. As an institution's insolvency festers, good assets and core deposits are replaced increasingly by instruments that generate no quasi-rents . During the 1985-1989 period, a substantial portion of observed zombies had been operating insolvently since at least the previous yearend. The average number of months that failed thrifts spent in a state of tangible insolvency was rising as well.

As the RTC slowly identified and reprivatized the franchises it chose to rescue, its reported resolution costs proved fairly high. In its first three years of operation, RTC resolution costs per dollar of the assets it chose to disgorge averaged 58 percent, 28.4 percent, and 26.1 percent, respectively. Because the thrifts the RTC was resolving had typically been insolvent for months on end, these cost rates confirm the hypothesis that the opportunity loss of franchise value in deeply troubled institutions is substantial. Delays may lead gross and net disposition cost to appear larger ex post than would have been experienced with a policy of routine early resolution of insolvent cases.

This interpretation is consistent with Barth, Bartholomew, and Labich (1990) estimates of the broad trend in resolution costs per dollar of assets that FSLIC experienced before its demise in 1989. High and rising disposition costs indicate an increasing private disinterest in many of the hard-to-value assets and franchises FSLIC had available to sell. This growing disinterest was reinforced by the depressing effect on industry profit margins that came from determinedly delaying the resolution of problem institutions.

The unreasonable $242.8 billion cost of resolving zombies that observed dispositions generate for 1989 suggests that the extremely high disposition costs observed in that year are not representative of the costs of resolving FSLIC's full caseload. As

Table III shows, only 37 cases were resolved in this year. At least a few of these are known to have been "selected" for resolution after their especially poor financial condition provoked a destructive run that forced authorities to act. To allow for the possibility that the cases chosen for resolution in particular years were easier or harder to market than the average insolvent thrift, it is useful to conduct sensitivity experiments that use constant hypothetical rates of per-dollar disposition cost. However, it must be remembered that such experiments eliminate any trend at all in disposition costs and that the likelihood of such a trend is part of the qualitative case against letting insolvencies ride.

B. Alternative Specifications of Incremental Disposition Costs

This section focuses on different ways of calculating what it would have cost FSLIC incrementally, year by year, to resolve each year's rollover of unresolved insolvencies. Neglecting unpaid dividends on FSLIC's forbearance equity, lines (7) and (9) of Table I give estimates of incremental liquidation and flexible-resolution costs using the annual average per-dollar disposition costs observed in line (6). Leaving 1989 aside, these estimates lie between $95 billion and $126 billion. The hypothetical cost of flexibly resolving all insolvencies in a given year can be approximated by adding to line (9) the reported cost of the cases that were resolved. Line (10) of Table I clarifies that the sharp decline in the cost of resolving carryover cases in 1988 was due to the great increase in resolution activity in that year and not to a dramatic improvement in aggregate zombie net worth.

Table II investigates the effect of different disposition-cost rates on the calculated time path for FSLIC's incremental resolution costs. The DeGennaro-Thomson 0.5 percent rate is the easiest to accommodate. As shown in line (2), on this assumption the incremental costs of "flexible" resolution is the sum of the absolute value of FSLIC's forbearance equity and one-half of one percent of assets resolved. On this assumption, in each of its last four years FSLIC could have reprivatized its caseload of zombies for about $50 billion. In view of what it actually cost to resolve cases in 1988-1992, this projection is implausible on its face.

Using James' assumption, net incremental disposition cost becomes nine percent of assets. The effects of this assumption are displayed in line (3) of Table II. It shows incremental resolution costs as peaking in 1988 and falling off thereafter.

Finally, using the average of the lowest disposition rates Barth, Bartholomew, and Labich (1990) observe between 1985 and 1991, line (4) assumes that net disposition costs are 15 percent in all years. On this assumption, the incremental costs of resolving all insolvent cases improved in 1987 but bounced back up in 1988.

C. The Effects of Unpaid Dividends and Variations in the Rate of Resolution Activity

The cost of the actual resolutions undertaken each year and the cumulative value of unpaid dividends on FSLIC's forbearance equity are given in the last two lines of Table II. The complete cost of flexibly resolving FSLIC's position in insolvent thrifts in any year is the sum of costs of incremental liquidations and these two items. Factoring these items into the picture would, on some assumptions, have made the rollover of the 1986 caseload into 1987 a profitable transaction had surviving insolvencies been resolved then. However, and contrary to White (1991), leaving the bets on the table into 1988 was a bad move under any constant disposition-cost ratio.

The calculated reduction in the opportunity cost of resolving remaining zombies in 1989 reflects the benefits of FSLIC's having stepped up the amount of assets resolved from $10.7 billion in 1987 to $100.7 billion in 1988. By itself, the unpaid dividend that would have been due had the corresponding $27.5 billion in forbearance equity not been eliminated would have added $5.5 billion to FSLIC's 1989 tab.

Assuming 9% per-dollar net disposition costs, industry insolvency and unpaid dividends could have been completely settled in 1989 for $119.6 billion. With 15% per-dollar costs, the bill would have been $162.7 billion.

D. Profitability Effects of FSLIC Forbearance

Corporate-finance and industrial-organization theory combine to predict that FSLIC's willingness to supply dividend-free equity capital to insolvent thrifts would lead their managers to bid industry profit margins to below-equilibrium levels. In turn, unsustainably low net interest margins on intermediated funds would tend to lower the amount of private capital in better-capitalized competitors. Over time, this reduction in industry profit margins spurred increased economic leverage as a way of restoring returns on private thrift capital to market levels. Both developments must be expected to increase opportunities for new zombies to move onto FSLIC's caseload and to reduce the proportion of "rolled-over zombies" that manage to recover in any year.

Table III presents year-by-year information on recovering zombies in 1986-1989. Aggregating across the four years the number of recovering zombies (747) roughly equals the flow of new insolvencies (864). Only in 1987 did the number of recovering zombies exceed the number of new insolvencies. Moreover, only in 1987 did a substantial amount of positive equity accumulate at recovering firms ($8.3 billion). This positive equity accrues to the private owners of each recovered enterprise. Even in 1987, FSLIC gained less than $8 billion in reduced “forbearance equity” in recovering firms. Unpaid dividends on FSLIC forbearance equity substantially exceeded this gain and the value of FSLIC exposure to future losses remained high every year in most recovering firms.

While it is hard to conclude that the forbearance strategy followed in 1985-1989 actually placed a winning bet, some winning strategies can be devised ex post. Table IV shows that in 1985-1988 a strategy of deferring the resolution of rolled-over zombies for no more than one year would have reaped gross benefits as often as it lost them. However, on average during 1985-1988, the strategy lost $8 billion per year. Further economic analysis would note that the net value of forbearance depends not only on how much delaying the exit of wrecked firms increased forbearance equity in new zombies, but also on the inefficient effects of tax loss carryforwards and of stimulating contemporary investment in real estate that the macroeconomy has proved slow to absorb.

VII. Summary Implications

Our estimates show that the value of FSLIC's forbearance equity did not worsen in every single year. Nevertheless, because relatively few of FSLIC's bets were ever taken off the table, capital forbearance proved ex post to be a costly strategy.

Had FHLBB officials routinely enforced opportunity-cost standards of capital adequacy, they would have prevented FSLIC's equity position from displacing private capital on a mammoth scale and would have improved the profitability of surviving

members of the industry. Resulting reductions in hidden tax liabilities for households and hidden subsidies to risky lending would have tempered both interim household spending and the overbuilding of commercial real estate (Congressional Budget Office, 1992; Shoven, Smart, and Waldfogel, 1992). This would have assisted disinflation and produced ex post a more valuable aggregate capital stock. In many parts of the nation, a legacy of see-through buildings that undercapitalized thrifts bid frenziedly to finance still retards job growth.

Table I

Summary Data on Market-Value (MV) Insolvent Thrifts and Incremental Costs of Resolving FSLIC's Annual Carryover of Unresolved Cases, 1985-1989

Yearend	1985	1986	1987	1988	1989
(1) No. of MV-Insolvent Firms	1073	1194	868	705	676
(2) Book Value (BV) of Assets (in $m)	576278	698050	475407	503943	492028
(3) MV Net Worth (in $m) = FSLIC's "Forbearance Equity Position"	-31846	-45489	-45783	-50718	-43123
(3a) Annual Opportunity Cost of Financing at 20% the "Forbearance Equity Position" FSLIC held at Previous Yearend (in $m)	...	6,369	9,098	9,157	10,144
(3b) MV Net Worth (in $m) Including One Years' Unpaid 20% Dividend on Forbearance Equity Carried Over into the Year	...	-51,858	-54,881	-59,875	-53,317
(3c) MV Net Worth (in $m), if Unpaid Dividends Are Cumulated from 1986 on	...	-51,858	-60,956	-70,113	-80,257
(4) Forbearance Equity Ratio: (3) / (2)	-5.53%	-6.52%	-9.63%	-10.06%	-8.76%
(5) Resolution Cost Per Dollar of BV Assets Actually Resolved	17.5%	24.6%	34.8%	31.0%	58.0%
(6) Implied Disposition Cost Per Dollar: (5) - | (4) |	11.97%	18.08%	25.17%	20.94%	49.24%
(7) Hypothetical Liquidation Costs (in $m) Using Per Dollar Disposition Cost Observed Each Year = (2) * (5) = (3) + (6) * (2)	100849	126207	119660	105526	242275
(8) Allowance for Capturing Franchise Values (in $m) = 1% of line (2)	5763	6980	4754	5039	4920
(9) Incremental Costs of Prompt but Flexible Disposition (in $m) = (7) - (8)	95086	119227	114906	100487	237355
(10) Hypothetical Costs of Flexibly Resolving All Insolvencies (in $m)	96065	122292	118610	131667	242754

Table II

Incremental Costs of Flexibly Resolving FSLIC's Annual Carryover of Unresolved Cases Assuming Different Patterns of Per-Dollar Disposition Costs, 1985-1989 (in $ billion)

Yearend	1985	1986	1987	1988	1989
(1) Size of FSLIC's Forbearance Equity Position	31.8	45.5	45.8	50.8	43.1
(2) DeGennaro-Thomson Specification of Net Disposition Cost	2.9	3.5	2.4	2.5	2.5
(2a) Implied Incremental Liquidation Costs: = (1) + (2)	34.7	49.0	48.2	53.3	45.6
(3) 9% of Assets Specification of Net Disposition Costs	51.9	62.8	42.8	45.4	44.3
(3a) Implied Incremental Liquidation Costs: = (1) + (3)	83.7	108.3	88.6	96.2	87.4
(4) 15% of Assets Specification of Net Disposition Costs	86.4	104.7	71.3	75.6	73.8
(4a) Implied Incremental Liquidation Costs: = (1) + (4)	118.2	150.2	117.1	126.4	116.9
(5) Cost of Actual Dispositions	1.0	3.1	3.7	31.2	5.4
(6) Cumulative Value of Unpaid Post-1985 Dividends on Forbearance Equity	...	6.4	16.7	28.0	40.4

Table III
Distribution of Rolled-Over and New Zombie Institutions, 1986-1989

End of Year	**1986**	**1987**	**1988**	**1989***
(1) No. of Rolled-over Zombies	1073	1194	868	705
(2) No. Recovering Each Year	158	367	115	107
(3) Recovering Cases Reaching MV Net Worth to Assets of More than 3%				
(3a) No. of Firms	44	119	34	46
(3b) BV Total Assets (in $m)	19385	90399	16250	29236
(3c) MV Net Worth (in $m)	2007	5573	2242	1400
(4) Recovering Cases Whose MV Net Worth Ratio Fails to Exceed 3%				
(4a) No. of Firms	114	248	81	61
(4b) BV Total Assets (in $m)	54064	212954	88008	83553
(4c) MV Net Worth (in $m)	698	2690	650	1769
(5) No. of Resolutions	46	47	205	37
(6) No. of New Zombies	353	128	174	209
(7) New Zombies Whose MV Net Worth to Ratio Exceeds -3%				
(7a) No. of Firms	185	54	97	121
(7b) BV Total Assets (in $m)	88175	25326	87470	75175
(7c) MV Net Worth (in $m)	-1241	-277	-768	-16813
(8) New Zombies Whose MV Net Worth Ratio Fails to Reach -3%				
(8a) No. of Firms	168	74	77	88
(8b) BV Total Assets (in $m)	75753	26176	123972	121272
(8c) MV Net Worth (in $m)	-9132	-3937	-22744	-1250

* As of end of third quarter.

Table IV
Hypothetical Costs of Deferring Resolutions, But Completing Them in the Next Year, 1985-1988
(in $ Billion)

Category of Expense	1985	1986	1987	1988
Resolution Costs for Institutions Actually Resolved During Next Year (Assumed to be Rolled-Over Zombies)	3.1	3.7	38.0*	5.4
FSLIC Forbearance Equity in Unclosed Rolled-Over Zombies at Next Yearend	35.1	41.6	27.2	25.1
Unpaid Dividends on Forbearance Equity (at 20%)	6.4	9.1	9.2	10.1
Hypothetical Disposal Costs (9% of Assets)	48.9	38.2	26.3	26.6
Total Costs with One-Year Deferral	93.5	92.6	100.7	67.2
Hypothetical Cost of Prompt Liquidation (9%-of-Asset Disposal Cost Assumption)	83.7	108.3	88.6	96.2
Gross Benefit of Deferral	-9.8	+15.7	-12.1	+29.0
Forbearance Equity in New Zombies	-10.4	-4.2	-23.5	-18.1

* Includes 18 so-called “stabilizations.”

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