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Insolvency, Moral Hazard and Expense Preference Behavior: Evidence from US Savings and Loan Associations

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This article applies the expense preference methodology to a study of determinants of employee compensation and occupancy costs for large samples of mutual and stock savings and loan associations. Strong evidence that insolvency is associated with significant increases in these costs is obtained. Further, we find that the effect of insolvency on managerial expense preference behavior is more pronounced for mutual than stock associations.

INTRODUCTION

Since the pioneering insights of Berle and Means (1932) and the more recent analyses of Williamson (1963), Rees (1974), Jensen and Meckling (1976), Wildsmith (1973), and others, the notion that agency problems may allow firm managers to behave in ways inconsistent with profit maximization has gained wide currency in financial and business research. In contrast to the neoclassical model of the firm, these 'managerial' or 'expense preference' theories begin with the recognition that nonowner managers can be expected to pursue their personal welfare to the degree that the organizational structure of the enterprise allows. The separation of ownership and control, the roles of debt and equity in firm finance, market power. intrusive regulation, information asymmetries and ill-defined property rights have all been associated with the potential for non-value-maximizing activities by managers.

From the perspective of economic efficiency, expense preference behavior typically represents both a real distortion in resource allocation, and a transfer from owners to managers. Ignoring the transfer dimension, the real costs associated with expense preferences can arise due to a divergence in the private costs and benefits of owners and managers. For example, if a manager is able to obtain an 'unneeded' Lear jet for his or her use, social costs arise because of a difference in the value of the jet to the manager and its cost to the stockholders. Since the manager is spending someone else's money, he or she fails to take account of the full costs. As noted by Meyerson (1984), however, these costs are just as 'real' as production costs in the usual sense, though they arise from 'incentive' rather than 'technological' constraints. So long as the costs associated with expense preference behavior are privately borne, however, it is unclear whether public policies regulating managerial behavior are justified or even feasible.

A radically different problem arises when managerial discretion is financed by public funds. Although inefficiencies in public enterprises have been topics of extensive analysis, the actions of private enterprises frequently generate public costs through government loan guarantees, government insurance programs and the like. A spectacular example of this problem is the ongoing resolution of failed US savings and loan associations. As of December 1994, $159 billion had been appropriated by Congress for this endeavor; $123 billion for the Resolution Trust Corporation and $36 billion for the separate FSLIC resolution

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fund. Because the insolvency of financial institutions is a vital public concern (in part because of the resulting costs through federal deposit insurance), the degree of expense preference behavior among financial institutions is of particular interest, as is the role of insolvency in influencing this behavior.

Insolvency itself has been recognised as a source of moral hazard even in the absence of more conventional agency problems. Golbe (1981), in a cogent analysis of the incentives attendant on imminent bankruptcy, noted that pending insolvency can induce owners to act as risk lovers, engaging in projects otherwise shunned. Beard (1990), in an analysis of the implications of potential bankruptcy for self-protection activities, noted that a positive probability of bankruptcy creates a 'implicit' subsidy to spending of any sort, thereby encouraging expense preference or any other kind of expenditure. It therefore appears probable that potential insolvency could be associated with elevated levels of expense preference behavior. Since the insolvency of financial firms such as savings and loan associations can generate taxpayer liabilities through federal deposit insurance, the problem of the role of the potential insolvency in expense preference activities by these firms is of immediate public consequence.

This paper offers an empirical analysis of the scope and significance of expense preference behavior among US S&Ls, with particular reference to the role of insolvency in determining the magnitude of 'excessive' managerial spending.

Our interest in this industry arises for two reasons. First, the public policy significance of this sector is obvious. Second, however, the institution of deposit insurance, combined with regulatory actions (such as the granting of 'capital forbearance' to insolvent S&Ls) allows bankrupt firms, so-called 'Zombie' thrifts, to continue operations despite their difficulties. Hence, the thrift industry provides a unique opportunity to observe ongoing behavior by insolvent firms.

Our analysis proceeds as follows. After briefly reviewing the relevant literature on expense preference behavior for financial firms, we propose several statistical models specified along conventional lines, but which include control variables representing firm insolvency. Separating our sample into subsamples based on firm ownership type, we find strong evidence of both absolute and relative increases in several spending categories associated with expense preference for those firms facing insolvency. These increases, generally of the order of 20–30% in several cost categories, can amount to millions of dollars for some savings and loan associations. We also find that the effects of insolvency on expense preference behavior are generally more pronounced for mutual than stock S&Ls.

After summarizing these results, we estimate the total costs to taxpayers of additional expense preference spending associated with insolvency, and find overall costs for our sample in the neighborhood of $260 million in 1988. The magnitude of these costs reinforce the point made by others that lags in the speed of RTC resolutions of bankrupt institutions may add significantly to the ultimate costs of resolving those institutions.[1]

LITERATURE SUMMARY

Numerous empirical studies have analyzed the magnitude and determinants of expense preference behavior among financial institutions. Edwards (1977), in a path-breaking study of the banking industry, found strong evidence for the expense preference theory of managerial behavior, and related his results to a pervasive regulatory environment. Later studies by Hannan (1979), Hannan and Mavinga (1980), Arnould (1985), and Gropper and Oswald (1995) found evidence of expense preference behavior among commercial banks, while Akella and Greenbaum (1988) and Verbrugge and Jahera (1981) found evidence to support similar conditions for savings and loan associations. In contrast to these findings, studies by Blair and Placone (1988) and Mester (1989) found, at best, very weak support for expense preference, and little evidence of significant differences in expense preference activities between stock and mutual ownership forms.

Empirical research which has modeled expense preference behavior has followed two main paths. In many studies, the variables of interest represent the numbers of employees, employee-related expenses and 'occupancy costs' (see, for example, Edwards, 1977; Hannan, 1979; Rhoades, 1980; Verbrugge and Jahera, 1981; Smirlock and Marshall, 1983; Blair and Placone, 1988). Alternately, other studies have utilized total operating costs (e.g. Mester, 1989, 1991). In both approaches, analysis focuses on comparing the extent of ex-

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pense preference activity across firms with varying ownership forms, market circumstances and other factors alleged to affect opportunities for managerial discretion. Insolvency is one factor which has not received any attention in this expense preference literature.

MODEL SPECIFICATION

We adopt a general model following Edwards (1977) and much of the later literature, so that expenses are modeled as a function of firm size, operational mix, market input prices and firm characteristics. The firm characteristic about which we are primarily interested is insolvency; however, we are also interested in the mutual and stock ownership issue. We adopt relatively conventional specifications for our regression models, and focus on spending related to employee compensation and amenities. Specifically, we focus on three measures of expenses:

(1) employee-related expenses E_1 (wages, salaries and fringe benefits including travel and miscellaneous allowances);
(2) occupancy expenses E_2 (rent, mortgage payments for physical facilities, furniture, equipment and maintenance, landscaping, etc.); and
(3) E_3, the sum of (1) and (2). These three expense measures are used as alternative indicators of possible expense preference behavior.

We adopt two alternative functional forms for our regression models. First, we estimate a linear model in which the spending measures are divided by total assets in order to examine differences in the amount of this spending per dollar of assets. Second, we consider a log-linear specification in which the logs of employee expenses, occupancy expenses and the sum of these expenses are regressed against the logs of several kinds of assets and the other explanatory variables, in addition to the insolvency dummy. Hence, our two basic models are:

$$E/A = \beta_0 + \beta_1(L/D) + \beta_2(SD/D) + \beta_3(NM/L) + \beta_4(I/L) + \beta_5(W) + \beta_6 FPCT + \beta_7(INSOLVE) + \beta_8(1/A) + \Sigma_i \delta_i(DIST) + \varepsilon_1 \quad (1)$$

$$\ln E = \alpha_0 + \alpha_1 \ln(MTG) + \alpha_2 \ln(NML) + \alpha_3 \ln(INV) + \alpha_4 \ln(SD) + \alpha_5 \ln(WAGE) + \alpha_6(FEE) + \alpha_7(INSOLVE) + \Sigma_i \gamma_i(Dist_i) + \varepsilon_2 \quad (2)$$

where the variables are

E	= expenses
A	= total assets
L/D	= total loan to total deposit ratio
SD/D	= small deposit (< $100 000) to total deposit ratio
NML/L	= non-mortgage loan to total loan ratio
I/L	= total investments to total loan ratio
W	= average hourly market wage for full-time employees
$FPCT$	= fee income as a percentage of total income
$Dist_i$	= series of regional dummy variables for FHLB districts
$INSOLVE$	= insolvency dummy variable; $INSOLVE = 1$ if insolvent
MTG	= mortgage loans
NML	= non-mortgage loans
INV	= investments
SD	= deposits less than $100 000
FEE	= Fee-based income
$\varepsilon_1, \varepsilon_2$	= random disturbances
$\alpha, \beta, \delta, \gamma$	= coefficients to be estimated

In general, the effect of firm size is captured by including total assets or the components which together comprise total assets in the model, while the effects of changes in the makeup of bank operations is captured in the various operations mix variables. In Eqn (1) these are the total loans to total deposits ratio, the small deposits to total deposits ratio, the non-mortgage loan to total loan ratio, the total investments to total loans ratio and the fee-based income to total income ratio. In Eqn (2) the various assets and deposit components enter separately to allow differential impacts on expenses. Regional variations in regulations and other factors are included via a series of dummy variables for eleven of the twelve FHLB districts in the dataset, with the twelfth district serving as the base district. Since the expenditures S&Ls make on employees is influenced in part by the labor markets in which they operate, we include the state average wage for full-time workers in the Finance, Insurance and Real Es-

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tate sector as reported by the US Bureau of Labor Statistics.[2]

The variable of primary interest is the variable indicating the firm is insolvent; this provides a test of our hypothesis that insolvency and expense preference behavior are positively related. We are also interested in determining whether this relationship differs for mutual and stock S&Ls.[3] Our expectation is that managers of mutuals will be more likely to exhibit expense preference behavior for at least two reasons; the greater diffusion of ownership in mutual S&Ls which has been the subject of much of the expense preference literature, and the critical role of deposit insurance in the S&L industry.[4]

The depositors in mutual thrift institutions are the owners of the thrift. Because of the *de facto* (if not *de jure*) federal insurance on every dollar of deposits, such owner-depositors have almost no incentive to monitor managerial actions. Such an environment would appear especially conducive to expense preference behavior.[5] Even though the stockholders of insolvent stock S&Ls also have very little incentive to monitor managerial behavior, their incentives appear at least marginally greater than those of the depositors at mutual S&Ls. There is, after all, some positive probability that the stock may be worth something as the institution is resolved. Thus, we expect that managerial behavior at insolvent S&Ls will reflect these incentives that owners face, with the result that greater expense preference behavior will be exhibited at mutual S&Ls than at stock S&Ls.

To empirically represent insolvency, we utilize the negative total regulatory capital test, the so-called'RAP' standard for insolvency.[6] This definition, which was widely used for regulatory purposes during the sample period, is somewhat weaker than corresponding standards based on accepted accounting practice.[7] Hence, those firms deemed insolvent under the RAP procedure are invariably insolvent under stricter alternative guidelines. We adopt this stringent approach for two primary reasons. First, regulatory seizure of the firm is in fact the ultimate risk to the firm, so that one would expect managers to pay close attention to the criteria which trigger seizures.[8] Second, by adopting this strict definition of insolvency, we are assured that those firms determined to be insolvent actually were insolvent under other common definitions of financial distress. Under the RAP standard, about 10% of our sample firms were insolvent at the end of 1988.

EMPIRICAL RESULTS

Data were obtained from the office of Thrift Supervision's Thrift Financial Report tapes. Year-end data for 1988 provide the basis for the results reported here; however, we repeated the analysis on year-end 1987 data with very similar results. Only FSLIC insured savings and loan associations were included in our analysis. The raw data were screened for a variety of problems. We deleted some institutions which reported negative expenditures, firms for which total assets did not equal total liabilities plus capital accounts, and institutions with missing values for some of our regression variables. These data problems resulted in dropping 158 institutions from the sample. We also omitted institutions in Alaska, Hawaii, Guam and Puerto Rico. Our final dataset contained 2056 observations, of which 757 were stock S&Ls and 1299 were mutual associations. All of the 48 contiguous United States except North Dakota are represented in our final estimations.

Table 1 presents descriptive statistics for our regression variables.[9] Because of the additional scope for managerial discretion offered by the mutual form of ownership, we conduct our analysis of stock and mutual savings and loan associations separately.[10] We note first that, though 63% (1299 of 2056) of our firms are mutual associations, stock associations are typically much larger, having average assets of around $636 million in 1988 compared to average mutual assets of about $191 million. Expenses and other measures of spending are also concomitantly higher for stock associations. We note also that, interestingly, stock associations are more likely to be insolvent than mutuals, the observed RAP insolvency rates being about 14.4% and 7.1%, respectively. Finally, we note some differences in the compositions of portfolios between the two ownership forms, with stock associations having lower investment to loan ratios, higher non-mortgage loans to total loan ratios and somewhat greater ratios of loans to total deposits.

Tables 2 and 3 present our estimation results for the ratio and log-linear specifications of the expense preference regression models.[11] Turning to the ratio specification first, we note that in all

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Table 1. Regression Variable Definitions, Means and Standard Deviations by Organizational Form

Variable	Description	Mean values: Stock	Mean values: Mutual
E_1	Total employee compensation and occupancy expenses	6414 (20621)	2087 (3977)
E_2	Total employee compensation	5151 (15967)	755 (3270)
E_3	Total occupancy expenses	1263 (4787)	322 (763)
A	Total assets	636109 (229184)	191304 (388125)
MTG	Mortgage loans	321500 (1258396)	101160 (196596)
NML	Non-mortgage loans	39860 (155107)	11438 (45252)
INV	Investments	113294 (437692)	34194 (83301)
SD	Deposits less than $100000	383387 (1182664)	150704 (276388)
FEE	Fee-based income	544 (2250)	142 (374)
FPCT	Fees as a percentage of total income	5.1% (10.7)	2.7% (2.7)
W	Average hourly wage in finance, insurance and real estate industry by state	12.13 (1.74)	12.11 (2.28)
L/D	Total loans/total deposits ratio	0.7773 (0.245)	0.723 (0.227)
SD/D	Small deposit/total deposits ratio	0.901 (0.088)	0.946 (0.041)
NML/L	Non-mortgage loans/total loans ratio	0.111 (0.115)	0.081 (0.083)
INV/L	Investments/total loan ratio	0.348 (0.512)	0.384 (0.482)
INSOLVE	Insolvency dummy: *INSOLVE* = 1 of insolvent	0.144 (0.351)	0.071 (0.257)

Note: All financial magnitudes in thousands of dollars except *W*, which is in dollars per hour. Standard deviations in parentheses. There are 757 stock and 1299 mutual associations in the sample.

models insolvency is highly significant and has the expected effect: insolvency is associated with statistically significant increases in all three categories of expense preference spending. Further, these effects are stronger (per dollar of assets) for mutual associations. Coefficient values indicate that the expenses associated with insolvency were approximately 5 cents per $100 of assets higher for mutual associations, an increase in costs of about 17.7% holding all else constant. For the average size mutual institution, this translates into an increase in annual expenses of roughly $95000 when compared to insolvent stock associations of the same size and output mix.

Our results for the other explanatory variables generally accord with expectations. For stock as-

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sociations, the ratio of loans to total deposits (L/D), non-mortgage loans to total loans (NML/L), investments to loans (I/L), state wage levels (W), fee-based income ($FPCT$) and the inverse of total assets ($1/A$) all exhibit significance in most specifications. Coefficient sign patterns are consistent across specifications: wages and fee-based income increase expenditure per

Table 2. Regression Results for Ratio Specification of Expense Preference Models

	Stock			Mutual		
	E_1/A	E_2/A	E_3/A	E_1/A	E_2/A	E_3/A
Intercept	0.412	0.307	0.105	0.623[a]	0.595[a]	0.028
	(0.487)	(0.419)	(0.111)	(0.292)	(0.260)	(0.072)
L/D	−0.317[a]	−0.265	−0.051	−0.069	−0.037	−0.032
	(0.061)	(0.139)	(0.037)	(0.079)	(0.070)	(0.020)
SD/D	0.280	0.321	−0.041	0.413	0.279	0.134
	(0.332)	(0.286)	(0.076)	(0.276)	(0.245)	(0.069)
NML/L	0.561[a]	0.516[a]	0.044	0.360[a]	0.270[a]	0.090[a]
	(0.260)	(0.223)	(0.059)	(0.132)	(0.117)	(0.033)
I/L	−0.221[a]	−0.201[a]	−0.021	−0.100[a]	−0.077[a]	−0.022[a]
	(0.072)	(0.062)	(0.016)	(0.036)	(0.032)	(0.009)
W	0.071[a]	0.053[a]	0.018[a]	0.006	0.004	0.002
	(0.029)	(0.025)	(0.007)	(0.007)	(0.007)	(0.002)
$FPCT$	2.133[a]	1.416[a]	0.171[a]	6.621[a]	5.830[a]	0.791[a]
	(0.256)	(0.220)	(0.058)	(0.414)	(0.368)	(0.103)
$INSOLVE$	0.288[a]	0.207[a]	0.081[a]	0.339[a]	0.257[a]	0.082[a]
	(0.090)	(0.077)	(0.021)	(0.044)	(0.039)	(0.011)
$1/A$	169.728[a]	147.275[a]	22.453[a]	73.450[a]	68.328[a]	5.121[a]
	(13.901)	11.961)	(3.175)	(4.360)	(3.881)	(1.090)
Dist 1	−0.122	−0.207	−0.095	−0.035	−0.059	−0.023
	(0.266)	(0.229)	(0.061)	(0.093)	(0.083)	(0.023)
Dist 2	−0.371	−0.207	−0.163[a]	−0.135	−0.115	−0.020
	(0.249)	(0.214)	(0.057)	(0.085)	(0.076)	(0.021)
Dist 3	−0.283	−0.160	−0.123[a]	−0.117	−0.096	−0.020
	(0.218)	(0.188)	(0.050)	(0.074)	(0.066)	(0.019)
Dist 4	−0.040	−0.002	−0.038	−0.193[a]	−0.196[a]	−0.025
	(0.172)	(0.148)	(0.039)	(0.069)	(0.061)	(0.017)
Dist 5	−0.291	−0.158	−0.133[a]	−0.269[a]	−0.226[a]	−0.043[a]
	(0.183)	(0.157)	(0.042)	(0.071)	(0.063)	(0.018)
Dist 6	−0.128	−0.073	−0.055	−0.188[a]	−0.182[a]	−0.006
	(0.269)	(0.231)	(0.061)	(0.081)	(0.072)	(0.020)
Dist 7	−0.535[a]	−0.385	−0.150[a]	−0.143	−0.134[a]	−0.008
	(0.224)	(0.193)	(0.051)	(0.074)	(0.066)	(0.018)
Dist 8	−0.530	−0.375	−0.154[a]	−0.322[a]	−0.269[a]	−0.053[a]
	(0.271)	(0.233)	(0.062)	(0.075)	(0.067)	0.019)
Dist 9	−0.395[a]	−0.283	−0.112[a]	−0.244[a]	−0.218[a]	−0.026
	(0.271)	(0.150)	(0.040)	(0.073)	(0.065)	(0.018)
Dist 10	−0.269	−0.186	−0.084	−0.375[a]	−0.319[a]	−0.056[a]
	(0.0195)	(0.168)	(0.045)	(0.081)	(0.072)	(0.020)

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Table 2. (*Continued*)

	Stock			Mutual		
	E_1/A	E_2/A	E_3/A	E_1/A	E_2/A	E_3/A
Dist 11	0.125 (0.205)	0.151 (0.177)	−0.026 (0.047)	0.502[a] (0.109)	0.358[a] (0.097)	0.144[a] (0.027)
F	16.771[a]	14.527[a]	16.628[a]	5.432[a]	42.490[a]	18.613[a]
Adj. *R*	0.284	0.254	0.282	0.394	0.378	0.205

[a]Significance at the 5% level. Variable definitions appear in Table 1.

dollar of assets as does greater reliance on nonmortgage loans, while an output mix biased towards more easily serviced investments reduces costs. The district dummy variables, while jointly significant, are often individually unimportant, a result that indicates that regional effects, while sometimes important, are not the major source of cost differences between institutions.

The ratio model results for mutual form associations are similar to those for stock savings and loans. Again, the prevalence of nonmortgage loans (*NML/L*) and fee-based income (*FPCT*) increase costs. Somewhat surprisingly, state level average wages (*W*) and the loan to deposit ratio (*L/D*) are typically insignificant.

Table 3 presents our findings for the logarithmic model described in Eqn (2). We note first that insolvency, while always receiving a positive coefficient, is not significant (at the 5% level) in the stock association regressions, although insolvency significantly raises costs E_1 and E_3 for mutual form savings and loans. These results, while generally in accord with the ratio model analysis, are clearly weaker. In one sense, however, they suggest that, while insolvency does not necessarily have a significant effect in all cases, the effect is clearly stronger for mutual associations. This conclusion accords well with our findings of a larger insolvency effect for mutual form institutions in the ratio model analysis.

Other results from the log form model are relatively intuitive. Increased outputs of services (e.g. *MTG*, *NML*, *INV*) raise costs, as do the levels of small deposits (*SD*). Wages typically increase costs for measures of expenses that include employee spending components.

In all the log-linear models the various components of total assets were entered separately to allow the effects of changes in output mix on expenditures to be reflected in a flexible manner. For example, increases in mortgage loans have a larger effect on total expenditures for both stock and mutual S&Ls than do increases in investments, an expected result. Increases in small deposits are also associated with significant and sizeable increases in expenditures. Neither all categories of assets nor all categories of liabilities can be included in the regression model because of the balance sheet identities. Similarly, we cannot have both total assets and some subsets of assets without implicitly incorporating such restrictions into our regression models.

Overall, our results provide support for the hypothesis that insolvency contributes to a climate of moral hazard leading to increased spending on salaries, benefits, furniture and equipment, and other expenditures associated with expense preference behavior. These findings immediately raise the issue of the actual financial magnitudes of these effects, and we now turn to a brief examination of this problem.

For simplicity, we will limit our analysis to the total expenditures category only (including both employee and occupancy costs), and utilize the ratio versions of the model for our calculations. Then, straightforward calculations utilizing the estimated coefficients on the insolvency dummy and sample mean variable produce the following conclusions. First, for stock associations, insolvency is associated with an increase in annual employee and occupancy expenditures of the order of $1 833 000 for our average stock association. This puts additional expenses for the stock sample at around $199.8 million, a not-inconsiderable sum even by S&L debacle standards. A similar analysis for mutual associations suggests increased employee and occupancy expenses of

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approximately $648 900 per association on average, and about $59.7 million for the entire mutual sample. Hence, for our 2056 institutions, insolvency apparently was associated with nearly $260 million in extra employee compensation and occupancy spending in 1988 alone.

CONCLUSION

This paper analyzed the effects of insolvency on several categories of expenditures traditionally associated with expense preference behaviour for a large sample of savings and loan associations.

Table 3. Regression Results for Logarithmic Specification of Expense Preference Models

	Stock			Mutual		
	$\ln E_1$	$\ln E_2$	$\ln E_3$	$\ln E_1$	$\ln E_2$	$\ln E_3$
Intercept	−2.313[a]	−2.331[a]	−5.792[a]	−3.043[a]	−3.024[a]	−6.309[a]
	(0.461)	(0.466)	(0.725)	(0.217)	(0.218)	(0.404)
ln(*MTG*)	0.157[a]	0.144[a]	0.198[a]	0.085[a]	0.096[a]	−0.005
	(0.040)	(0.040)	(0.062)	(0.027)	(0.027)	(0.050)
ln(*NML*)	0.047[a]	0.051[a]	0.019	0.029[a]	0.031[a]	0.026
	(0.012)	(0.013)	(0.020)	(0.007)	(0.007)	(0.013)
ln(*INV*)	0.074[a]	0.062[a]	0.103[a]	0.017	0.019	0.004
	(0.018)	(0.018)	(0.028)	(0.013)	(0.013)	(0.024)
ln(*SD*)	0.594[a]	0.605[a]	0.638[a]	0.794[a]	0.765[a]	1.012[a]
	(0.053)	(0.054)	0.084	(0.039)	(0.039)	(0.072)
ln(*WAGE*)	0.381[a]	0.314	0.793[a]	0.173[a]	0.174[a]	0.169
	(0.188)	(0.190)	(0.295)	(0.077)	(0.078)	(0.144)
ln (*FEE*)	0.216[a]	0.206[a]	0.262[a]	0.128[a]	0.123[a]	0.170[a]
	(0.016)	(0.016)	(0.025)	(0.10)	(0.10)	(0.018)
INSOLVE	0.074	0.050	0.141	0.074[a]	0.047	0.202[a]
	(0.048)	(0.049)	(0.076)	(0.034)	(0.034)	(0.064)
Dist 1	−0.037	−0.063	−0.500[a]	−0.049	−0.079	0.162
	(0.041)	(0.143)	(0.222)	(0.073)	(0.073)	(0.136)
Dist 2	−0.161	−0.042	−0.718[a]	−0.189[a]	−0.192[a]	−0.175
	(0.132)	(0.133)	(0.207)	(0.065)	(0.066)	(0.122)
Dist 3	−0.162	−0.061	−0.570[a]	−0.170[a]	−0.174	−0.179
	(0.117)	(0.118)	(0.184)	(0.057)	(0.057)	(0.106)
Dist 4	−0.047	0.015	−0.296[a]	−0.176[a]	−0.176[a]	−0.217[a]
	(0.092)	(0.093)	(0.145)	(0.053)	(0.053)	(0.099)
Dist 5	−0.214[a]	−0.109	−0.686[a]	−0.276[a]	−0.275[a]	−0.336[a]
	(0.098)	(0.099)	(0.154)	(0.054)	(0.054)	(0.101)
Dist 6	−0.144	−0.079	−0.330	−0.221[a]	−0.238[a]	−0.089
	(0.144)	(0.145)	(0.226)	(0.062)	(0.062)	(0.116)
Dist 7	−0.255[a]	−0.157	−0.674[a]	−0.163[a]	−0.178[a]	−0.082
	(0.120)	(0.121)	(0.188)	(0.057)	(0.057)	(0.106)
Dist 8	−0.400[a]	−0.322[a]	−0.827[a]	−0.308[a]	−0.302[a]	−0.382[a]
	(0.144)	(0.146)	(0.226)	(0.057)	(0.057)	(0.106)
Dist 9	−0.297[a]	−0.227[a]	−0.578[a]	−0.263[a]	−0.280[a]	−0.190
	(0.094)	(0.095)	(0.147)	(0.060)	(0.056)	(0.104)
Dist 10	−0.250[a]	−0.168	−0.613[a]	−0.355[a]	−0.360[a]	−0.367
	(0.104)	(0.105)	(0.164)	(0.062)	(0.062)	(0.115)

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Table 3. (*Continued*)

	Stock			Mutual		
	$\ln E_1$	$\ln E_2$	$\ln E_3$	$\ln E_1$	$\ln E_2$	$\ln E_3$
Dist 11	0.069	0.142	−0.233	0.190[a]	0.139	0.415[a]
	(0.109)	(0.110)	(0.172)	(0.085)	(0.085)	(0.158)
F	422.559	401.211	211.889	992.776	948.198	371.498
Adj. *R*	0.910	0.906	0.835	0.934	0.931	0.840

[a]Significance at the 5% level. Variable definitions appear in Table 1.

Utilizing a standard approach augmented with the inclusion of insolvency variables, we found evidence that insolvency is associated with statistically significantly higher levels of employee compensation and occupancy costs. While it is certainly possible that some insolvent institutions may exhibit higher expenditures on employee compensation due to efforts to hire better and presumably more expensive managers, it seems unlikely that solvent institutions would be able to avoid higher compensation expenses as they would presumably attempt to retain better managers and employees. Also, while without more detailed (and generally confidential) data on individual compensation and managerial performance, we cannot distinguish this behavior with absolute certainty, it seems implausible that the above effect would also be responsible for higher expenditures for furniture, equipment and other occupancy expenses.

Our empirical findings regarding the association between insolvency and expenditures are stronger for the expenses relative to assets specifications than for the log-linear specifications, and generally stronger statistically for mutual than for stock associations. Further, we find that insolvency is associated with a greater percentage increase in expense preference spending for mutual than stock associations. This suggests that an additional social cost of federal deposit insurance may arise because it removes any incentive for most owners (e.g. depositors) of mutual S&Ls to monitor spending by managers of their institutions, so that federal deposit insurance contributes to an environment where expense preference behavior can thrive. Hence, we conclude that insolvency may well lead to increases in moral hazard behavior among association managers, particularly when insolvency is combined with federal deposit insurance which allows insolvent institutions to stay in operation.

For policy purposes, our results add further evidence to that accumulated by others to suggest the value of timely seizures and resolutions of troubled savings and loan associations.[12] Standing by while there is increased spending for salaries, amenities and other benefits hardly seems justified for thrifts facing insolvency in light of the fact that taxpayers will ultimately pick up the tab.

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NOTES

1. See Barth *et al.* (1990) for a thorough analysis of the costs of resolving failed thrifts.
2. We use this external wage rate because it most closely approximates the wage individual S&Ls would have to pay to hire additional workers; S&L employees themselves reportedly make up a small percentage of all workers in this sector. Institution-specific data on hourly wages were not available. This specification has been used previously; see Beard *et al.* (1991)
3. In addition to the papers by Akella and Greenbaum (1988) and Verbrugge and Jahera (1981), Benston *et al.* (1986) and Kane (1985) also discuss agency cost differences between mutual and stock S&Ls.
4. It may be useful to clarify that the theory being tested presumes an opportunity-cost or market-value definition of insolvency. Implementing such a definition would require information on the realizable value of firm contributed intangible and tangible assets. Since such data are not readily available,

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we use several measures of solvency which are available, and check our results for their sensitivity to the empirical definition of solvency used, as discussed below.

5. While the important point that deposit insurance policies provided bank and thrift managers with perverse incentives has been widely discussed, most attention has been focused upon excessive risk taking in lending activities or pecuniary externalities which could arise as weak firms bid up deposit interest rates and thus impose higher costs on their competitors. See Barth (1991) and Kane (1989) for excellent summaries of this issue.
6. Alternative capital standards (GAAP and TAP) were also used to determine solvency. The regression results using these alternative definitions were essentially similar to those reported here in Tables 2 and 3. Specifically, the dummy variable for insolvency under any capital standard was always positive and significant at the 5% level in the ratio specifications. The insolvency dummy variable was always positive in the logarithmic specifications as well, but it was significant at the 5% level in only two of twelve cases, and significant at the 10% level in four more cases. This result is relatively intuitive given the relationships between these various insolvency standards.
7. See Barth (1991) for a good discussion of these differences in accounting standards and other critical regulatory issues in the thrift industry. In addition, Kane (1989) and White (1991) also provide good discussions of capital, insurance and regulatory issues in this industry.
8. See Barth *et al.* (1989) for an excellent discussion of this issue.
9. For those interested in duplicating our results, TFR field definitions for our regression variables will be provided upon request.
10. To provide a statistical test of this assumption in our analyses, we first ran our six expense preference regressions pooling the mutual and stock firms. We then conducted a Chow test to determine whether the coefficients differed significantly for stock and mutual S&Ls. The *F*-statistics constructed ranged from a low of 10.48 to a high of 19.51; all exceeded the critical *F* value at the 1% level, so the hypothesis that the regression coefficients did not differ significantly between stocks and mutuals could be rejected. Complete details are available from the authors upon request. With this statistical support for our prior expectation, we then estimated all our models separately for mutual and stock associations.
11. We also attempted estimation of similar models with the insolvency variable interacted with all other regression variables. Singularities with some of the district variables precluded estimation of a completely interactive model. We were, however, able to estimate models with all the other variables interacted with the insolvency variable. Due to space limitations, these results are not included here, but will be provided upon request. In summary, a Chow test for the significance of the inclusion of these variables was not statistically significant in any of the log-linear specifications, nor was it significant for two of the three ratio specifications for stock associations. Inclusion of the seven additional insolvency-interaction variables was statistically significant for the total expenses/assets model for stock associations, and for all three models for mutual S&Ls. In all cases, the net effect of the interaction variables is that which is indicated by the intercept dummy; insolvency is associated with elevated expenses.
12. This suggestion regarding prompt regulatory action is, of course, not new. See Kane (1989) and Barth (1991) for discussion of the issues involved in rapid resolution of insolvent institutions. In previous papers the primary emphasis has been on asset deterioration and deposit interest rate increases.

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