The Effect of Board Strength on Managerial Persistence: A Longitudinal Study of Problem Loans

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Abstract

Agency theory adopts the assumptions that management pursues self-interest over that of owners and that boards are necessary to oversee this relationship and align these interests. However, if the assumption is that people are self-interested, the theory should apply to members of the board as well as management. This paper extends agency to the board by reviewing the effects of board composition on loan losses in banks.

Introduction

Research on agency theory has attempted to describe governance mechanisms that organizations use to solve what is known as the basic agency problem: that (1) management may have goals and motives which do not serve the interests of owners and (2) owners may find it difficult or undesirable to directly monitor or verify what management is doing. Agency theory adopts the assumptions that individuals pursue their self-interest and that goals can conflict in organizations (as in March, 1962; Pfeffer, 1981). Agency theory also relies on boundedly rational individuals who are faced with asymmetrically distributed information (Eisenhardt, 1989). That is, managers are better informed than owners, putting managers at an advantage. Thus, according to Eisenhardt (1989), "the heart of principal-agent theory is the trade-off between (a) the cost of measuring [managers'] behavior and (b) the cost of measuring outcomes and transferring risk to the [managers]."

Fama and Jensen (1983) described the role that boards of directors play in mediating the tension between owners and managers. They proposed that when a manager acts irresponsibly, boards with richer information are in a better position to identify the poor performance and transfer risk, in terms of job loss, to the manager. This inherent threat is assumed to align managers' behavior with the interests of owners. Thus, a great deal of research on agency theory has operationalized the richness of board information, and attendant strength of implied monitoring, in terms of board members' number, tenure, experience and industry background, and homogeneity (Eisenhardt, 1989).

Agency Theory in a Banking Context

One of the major problems faced by banks is the management of problem loans. Two ways banks cope with problem loans are by making provisions for future loan losses and by writing off non-performing loans. Allocating funds to a loan loss reserve means that a bank expects future loan losses to result. Writing off a loan means that the bank removes the account receivable from the assets of the firm's balance sheet. Both of these actions are, to some extent, a signal of problems in prior lending decisions. As such, if agency-theory is correct and directors are effective in transferring risk to managers, then one might expect that provisions and write-offs would precede turnover, as those responsible for bad loans would be removed from positions of responsibility.

Board Strength, Director Interests, and Shifting Responsibility

The turnover-precedes-write-offs effect may be due to the weakness of boards of directors. While normative agency theory is predicated on the notion that directors can be monitors of management, it does not guarantee that they always will be. What is prescriptive is not always descriptive. After all, managers may be better at seeking their own interest than boards are at monitoring. A key mediating variable that was not accounted for in the Staw, et al., (1996) study was the strength of the board. While it is not feasible to directly assess the vigilance of individual managers or directors, it is possible to track changes in the demographic makeup of the board and management team over time. In this study, I test whether a strong board precludes managers from engaging in problematic loan practices, by anticipating a decrease in loan losses, net of any effects from manager or director turnover.

Proposition A: A strong board reduces subsequent problem loans.

One can also examine whether board strength mitigates the disengaging effect of management turnover. Staw, et al., argued that, because management has a tendency to persist with prior loan practices, the turnover of management will provide a chance to change course. However, if strong boards are indeed more vigilant in controlling management decisions, there might be no need for management turnover as a coping device for managing problem loans. With strong boards, increased accountability may preclude the tendency to persist with a losing course of action. Hence, I argue that if this effect of turnover simply reflects nonvigilant boards, it should be weaker when the board is stronger and stronger when the board is weaker. If directors are seen as agents for owners, then a strong board should align managers' behavior with the interests of the owners. I refer to this as Proposition B:

Proposition B: A strong board reduces the effect of management turnover on subsequent loan write-offs, controlling for the level of problem loans.

Since directors are assumed to have no interests of their own (their interests and those of owners are assumed to be aligned), a simple story would not anticipate a relationship between director turnover and subsequent write-offs. Drawing on a managerial perspective according to agency theory, however, I predict that directors' interests can become manifest when the board is strong. In fact, a strong board may displace both the responsibility and commitment of management, introducing a new linkage between director turnover and write-offs. The link between director turnover and loan write-offs may result from a shift in the locus of responsibility, from management to the board of directors.

In what sense can directors be said to be responsible for problem loans? In general, boards have little responsibility for functional or operational decisions (Kosnik, 1987). Directors are certainly not involved in the day-to-day loan operations—they do not make loans and they do not write off loans. Nonetheless, boards can have substantial indirect effects (Kosnik, 1987). Directors can influence lending practices through managerial policy decisions. They may also influence lending practices through the threat associated with strong oversight. Managers may, therefore, act in ways they otherwise would not because they are aware of directors' ability to monitor their lending practices.

In the simple agency theory story, managers respond to a stronger board by being more vigilant in lending. But, I argue that is not the only way they could react. Directors have interests of their own to protect (Mallette and Fowler, 1992). If managers behave in ways to anticipate the preferences of directors or otherwise try to win the favor of directors, then a strong board simply displaces the agency problem, rather than solving it. The key to agency arguments about the effectiveness of boards in altering management behavior lies in the perception by management that boards provide owners with better information. This is not the same, however, as owners' interests actually being served. Instead, the responsibility of the board displaces that of management.

I label this twist to the personal responsibility hypothesis of escalation theory (Staw, 1976; Brockner and Rubin, 1985), the responsibility-shift. Because responsibility for decision-making has repeatedly been found to be associated with persistence (Brockner, 1992), so too would one expect to find a change in the focus of persistence as responsibility is altered. As increased board strength shifts the locus of responsibility from managers to directors, this should improve the coping of managers with respect to their own interests, but actually worsen coping with respect to directors' interests. While I still predict that the presence of a strong board should decrease the link between management turnover and write-offs of problem loans, I now also predict that board strength should create a positive link between director turnover and subsequent write-offs. I refer to this additional prediction as Proposition C.

Proposition C. A strong board introduces an effect of director turnover on subsequent write-offs, controlling for the level of problem loans.

Demographics and Board Strength

Size

From an agency perspective, larger groups have more cognitive resources and knowledge (Bantel & Johnson, 1989; Hambrick & D'Aveni, 1992) and access to more information sources (Hambrick & Mason, 1984), resulting in a larger repertoire of possible practices and greater adaptability (Katz, 1982). As a result, larger boards should have a greater monitoring capacity (Murray, 1989). Combining these findings with propositions a-c leads to the first set of hypotheses.

H1: Increased board size should a.) decrease subsequent problem loans and write-offs, net of any turnover effect, b) decrease the effect of management turnover on write-offs, controlling for problem loans and c) increase the effect of director turnover on write-offs, controlling for problem loans.

Homogeneity

Homogeneous teams have been seen as more efficient (Hambrick & Mason, 1984; Murray, 1989), because members of homogeneous teams know what to expect from one another (Pfeffer, 1983). Homogeneous background experience has been found to lead to better performance on tasks that do not require creativity or innovation (Ancona and Caldwell, 1992), such as financial performance in high-tech firms (Smith et al, 1994). Further, homogeneous teams tend to communicate more (Murray, 1989), to be higher in social cohesion (Lott and Lott, 1965), and to have greater commitment to prior courses of action (Wiersema and Bantel, 1992). Combining these findings, a more homogeneous board is likely to be seen as stronger, more responsible for and committed to loans, and less amenable to having prior loans written off.

H2: Increased director homogeneity should a.) decrease subsequent problem loans and write-offs, net of any turnover effect, b) decrease the effect of management turnover on write-offs, controlling for problem loans and c) increase the effect of director turnover on write-offs, controlling for problem loans.

Tenure

Greater board tenure should also increase its ability to use information and make it less likely to be persuaded by self-interested arguments of managers. As individuals stay in an organization, they become increasingly confident that they know how to do things the right way (Wanous, 1980). Hence, a board that has been in place longer is likely to be stronger, more unyielding, and more responsible for lending practices. The resulting shift in locus of responsibility (from management to the board) should lessen the link between management turnover and subsequent write-offs, while increasing the link between board turnover and write-offs. The logic at work in the aforementioned prediction is that management will act according to directors' interests or policies. In such a scenario, board turnover provides management with the opportunity to reassess a bank's loan portfolio.

H3: Increased board tenure should a.) decrease subsequent problem loans and write-offs, net of any turnover effect, b) decrease the effect of management turnover on write-offs, controlling for problem loans and c) increase the effect of director turnover on write-offs, controlling for problem loans.

Independence: Outside v. Inside

Outside directors are thought to be more vigilant in protecting the long-term interests of stockholders because they are not bound to the short-term performance of the firm in the way insiders are thought to be (Finkelstein & D'Aveni, 1994; Fama & Jensen, 1983; Johnson, Hoskisson & Hitt, 1993). Outsiders are less susceptible to the social influence of executives (Warner et al, 1988) and have a personal reputation at stake that gives incentive to be vigilant (Rahedja, 2005). Some studies have borne out this axiom, finding that insiders are less

fiduciarily responsible (Kesner & Johnson, 1990) and outsiders are associated with higher performance (Waldo, 1985; Zahra & Pearce, 1989). Hence, outside directors should improve loan performance and decrease problem loans. Because of the perception of outsiders as objective monitors, the presence of outside directors may also shift loan responsibility to the board. I predict this shift of responsibility will translate into a displacement of managers' persistence and decrease the management turnover effect on write-offs, but also increase the effect of director turnover on write-offs.

H4: Increased board independence should a.) decrease subsequent problem loans and write-offs, net of any turnover effect, b) decrease the effect of management turnover on write-offs, controlling for problem loans and c) increase the effect of director turnover on write-offs, controlling for problem loans.

Relevant Experience

Frequently, boards are composed of executives with general managerial experience. However, in banking, directors may have a background in an industry with which the bank conducts business, or directors may have occupational experience relevant to banking. In such cases, directors should be privy to more information relevant to loan performance and be better able to digest the information that is available. Thus, directors with experience in a field to which loans are made should know more about the risks of operating in that field and be better able to assess lending opportunities, lessening problem loans. With greater capabilities will likely come greater responsibility. Such a shift in responsibility should, as argued earlier, break the link between management turnover and write-offs, and build a relationship between director turnover and subsequent write-offs. Hence, directors with a background in a material lending field of a bank should displace management's persistence from their own interests to directors' interests, reducing the effect of management turnover, but increasing the effect of board turnover on write-offs.

H5: Increased relevant board experience should a.) decrease subsequent problem loans and write-offs, net of any turnover effect, b) decrease the effect of management turnover on write-offs, controlling for problem loans and c) increase the effect of director turnover on write-offs, controlling for problem loans.

Method

Data Sources

The data for this research consisted of 9 years of archival data on 132 banks located in California. I included in the study essentially the entire population of domestic, regional and independent banks that were in business from 1979 to 1987[1]. Although the California economy is diverse, examining banks from a single state provided some control for conditions that might affect a single geographic region.

The source of the data was the Findley Reports on California Banks (Findley Reports Inc., 1979-1988). These reports contain detailed year-end financial and operating data, as well as the names and demographic information on the executives and board of directors for each bank. The Findley Reports are compendiums of annual data from other sources, such as the Uniform Call Report filed by all commercial banks insured with the FDIC as well as reports from other federal and state banking agencies.

Dependent Variables: Problem Loans and Coping with Them

I used two common banking statistics as indicators of the extent of a bank's problem loans: the amount of loan delinquencies and the net loan losses. I used a third common banking statistic to measure coping with problem loans: provision for loan losses. In analyzing coping, I use prior loan delinquencies and a fourth indicator, prior allocations to loan loss reserve, as controls for the level of problem loans still at risk for being written off and subject to coping.

Loan delinquencies

Delinquent loans are those loans on which payments are not up to date. For the measure of loan delinquencies, I only use those loans past due for more than 90 days, as shorter times past due frequently capture minor business fluctuations or delays in internal processing, and are often resolved promptly. Because the amount of loan delinquencies will naturally vary with the size of a bank's loan portfolio, I adjust loan delinquencies by taking them as a percentage of a bank's total outstanding loans. Since loan delinquencies were only reported for approximately 40 percent of the sample, I have only partial data on this measure. The mean value of adjusted loan delinquencies for the banks that did report a figure was .0418, with a standard deviation of .0354.

Net loan loss

Net loan loss is the final accounting write-off of loans as losses. By writing off a loan it is considered uncollectable and therefore, under standard accounting rules, no longer qualifies as an active bank asset (Patten, 1983). Net loan loss is the residual of all write-offs taken during the year, less any unanticipated recoveries during the year from any loans previously written off (Bank Administration Institute, 1984). Because net loan loss may also vary widely by the size of a bank's loan portfolio, it was adjusted in the analyses as a percentage of the bank's total outstanding loans. The mean in the population for adjusted net loan loss was .0062, with a standard deviation of .0108.

Provision for loan loss

The provision for loan loss is the amount of money a bank sets aside in a given year in anticipation of non-performing or uncollectable loans (Banking Terminology, 1989). This allocation of funds appears on the income statement as an operating expense. Because the provision

[1]*With the exception of four banks for whom dependent variable data was missing.*

for loan loss directly decreases bank earnings for the year, it is not taken lightly. It is made only after careful scrutiny of the loan portfolio and reflects a willingness to accept the fact that losses are likely to occur. Obviously, the size of the provision for loan loss is highly dependent on the size of a bank's portfolio. To control for differences in bank size, provision for loan loss was calculated as a percentage of the bank's total outstanding loans. The adjusted provision for loan loss in the population had a mean of .0075, and a standard deviation of .0094.

Loan loss reserve

Loan Loss Reserve represents the accumulated funds set aside for future loan losses. This reserve is listed on the balance sheet. It is increased by the yearly provision for loan loss (an expense item) and decreased by loan write-offs (Banking Terminology, 1989). Because loan loss reserve is an accumulated balance, it can affect whether a bank considers it necessary to make further provisions for loan losses in any given year. In addition, having placed money earlier into a reserve may influence willingness to write off problem loans as uncollectable (or losses). Therefore, I use the loan loss reserve as a control variable in the analyses. This variable was also adjusted by the bank's total loans. The mean for adjusted provision for loan loss was .0120, with a standard deviation of .0099.

Board Strength: Demographic Measures

Several demographic measures are common in the agency-theory literature on boards of directors. In computing the board measures, I use only directors who are not also managers. The first two measures of board strength are the size of the board and the average tenure of directors. Size is a simple count of the number of directors on the bank's board in a given year. Tenure is equally simple, being the numerical average of time served on the bank's board for all directors serving in a given year. I compute Independence as the percent outside by taking the number of directors who had no other association with the bank (current or prior) over the board size.

Homogeneity of directors' backgrounds was measured by first coding directors into 13 categories organized around 4-digit SICs (Standard Industrial Classifications): agriculture, mining, construction, manufacturing, transportation, wholesale trade, retail trade, finance, real estate, service industries, public administration, general business (administration not specific to an industry), and non-labor-market experience (e.g. homemakers). I then computed an index of homogeneity for each firm in each year as follows. For firm i in year , I denote the number of directors with a background in occupation type *j* as and the total number of directors aggregated over all occupations (*j*=1...13*)* as n_{it}. The proportion of bank *i*'s directors of background *j*, out of the total board size is denoted $p_{it,j}$ and given by $p_{it,j} = n_{it,j} / n_{it}$. Each is squared and then the sum is taken over all *j*, resulting in the index of diversity, y_{it}, so that:

$$y_{it} = \sum_{j=1}^{J} p_{it,j}^2 .$$

This is equivalent to subtracting from unity the index of heterogeneity popularized by Blau (1977).

I assess the extent to which directors have Relevant Experience (backgrounds in fields to which their bank has significant loans) by forming a composite variable of interactions between two types of variables. First, I separately compute the percentage of directors whose primary occupational background is in each of five categories: finance, farming, construction, real estate, or other industry. These five fields account, on average, for about 50 percent of the board; in some cases, a single one of these fields comprises the entire board. For example, suppose in a particular year a bank had ten directors, five of which had backgrounds in finance, three in farming, and one each in construction and real estate. Such a bank would have values for the five director background variables of .5, .3, .1, .1, and 0, respectively, in that year. Second, I compute the percentages of a bank's total loans that are to each of five related classes of borrowers: financial institutions, farmers, construction contractors, real estate developers/purchasers, or industrial concerns. On average, approximately 50 percent of bank loans are to these five areas; in many cases, a single one of these areas accounts for more than half of a bank's loans. Let us further suppose that in the same year our imaginary bank had a million dollars in total loans, comprised of two hundred thousand to each class of borrowers. The values for the five lending field variables would be .2, .2, .2, .2, and .2. Then, I form the composite interactions of director backgrounds and lending fields by multiplying, respectively across the associated background categories and lending fields, the results of step one and two. For our exemplary bank and year, the values for the five background-by- field interactions would be .1, .06, .02, .02, and 0. A summary measure of relevant experience is formed by summing over the values of these five interactions and then taking the square root.

Turnover

Turnover was calculated for each bank in each year as the number of directors and managers, respectively, leaving a bank. Turnover was indicated when a bank executive was recorded as working for the bank during a given year but not listed by the bank during the subsequent year. For example, if an executive was reported as CEO in 1980, but not in 1981, then he or she was coded as turning over in 1981. Because the Findley Reports list executives at year's end, turnover recorded as occurring in a given year could have occurred anytime from 1 to 12 months into the calendar year. Only senior management and board members who left the bank entirely were included in the turnover data. Those who did not leave the bank, but were assigned to other managerial positions (e.g., via promotion), were not included in turnover calculations as they could still have an influence over loans. Turnover was coded as missing if a position was vacant in a given year within a bank, and not treated as zero.

Interactions of demography and turnover

For turnover to have an effect on write-offs, there must be problem loans held prior to the turnover. Recall that I interpret the turnover-to-write-offs link as indicating prior escalation—only when a responsible party leaves can a bank properly cope with problem loans. Thus, by forming an interaction term between board demography and turnover, I can examine the influence of directors' characteristics on the coping process that underlies the aforementioned turnover effect. A positive coefficient on a demography—turnover interaction indicates that the relevant board characteristic magnifies the effect of turnover. A negative coefficient on a demography—turnover interaction, in contrast,

indicates that the relevant board characteristic mitigates the effect of turnover. I assume that a positive interaction indicates greater prior persistence and, as such, represents a worsening in coping; whereas a negative effect suggests improved coping. It is through these interactions, then, that I will test the predictions of our responsibility-shift theory.

Additional Control Variables

Management strength and experience

Because of interest in how our board demography measures influence actions taken by managers, comparable measures of size and tenure for the top management team are included as controls. For these top management team measures, I include bank presidents, CEO's, and chairmen, as well as other bank senior management (executive and senior vice-presidents, COO's, vice-chairmen, CFO's, controllers, and cashiers). Size is a simple count of the number of employees in the positions just mentioned. Tenure is the average number of years managers held their positions. Note that I do not use the total years in the bank for the measure of management tenure, as this might include years for which individuals did not have loan responsibility, and hence, over-estimate the strength of management relative to the board. I also control for the average number of years in banking among the top management team as an additional measure of management experience.

Fixed firm and year effects

For statistical purposes, as described in the next section, I control for differences in bank policies and in economic conditions over time by including dummy variables both for firms and years.

Statistical Methods

Statistical analyses were conducted on nine years of cross-sectional records (from 1979 to 1987) for all 132 California banks in our dataset. To test the predictions of our hypotheses, I employed a panel regression estimator. This procedure allowed us to account for the effect of years, individual banks, and other specified control variables. The selection of this technique was primarily based on the theoretical consideration that effects of escalation reside within firms and occur over time. That is, I are interested in explaining processes (e.g., board strength influencing coping) that occur within firms over time rather than factors (e.g., geographic region) that determine which banks had the highest levels of write-offs.

As such, I do not want the estimates to be biased by between-firm variation on variables that cannot be observed[2]. Such unobserved heterogeneity could arise due to differences among firms in omitted variables that are constant over time, such as different initial conditions. Or, unobserved heterogeneity might result from differences over years in omitted variables that are constant over firms, such as changes in economic conditions. These omitted variables could affect both independent and dependent variables (as a common cause), biasing estimates of our parameters (capturing the relationship between independent and dependent variables). [For example, some banks may have "weaker" boards and more write-offs due to differences in histories or strategies.]. To eliminate any spurious effects due to unobserved differences among firms I included fixed firm effects. That is, I included a dummy variable for each firm, giving each firm its own mean, or constant, on all of the independent variables and the dependent variable. This fixed-effects approach is used rather than the alternative random effects specification sometimes used in panel regression because I have virtually the entire population of California banks operating over our nine-year observation period rather than a random sample.

In the analysis of problem loans used to test hypotheses H1a—H5a, with fixed effects included for both the firm and year controls and lagged independent variables as predictors, the dependent variable (delinquencies, net loan losses) for bank *i* at time *t*, $y_{i,t}$, is modeled as:

$$y_{i,t} = \alpha_i + \gamma_t + \psi_1 \cdot \mathrm{TO}_{i,t\text{-}1,\mathrm{man}} + \psi_2 \cdot \mathrm{TO}_{i,t\text{-}1,\mathrm{dir}} + \sum_{j=1}^{J} \beta_j \cdot x_{i,t-1,j} + \sum_{k=1}^{K} \theta_k \cdot z_{i,t-1,k} + \varepsilon_{i,t}$$

In this equation, α_i is the effect, or intercept, of firm i: $i = 1 \ldots N$, where *N* is the number of banks; is the effect, or intercept, of year t: $t = 1 \ldots T$, where *T* is the number of years. The within-firm slopes of management and director turnover are, respectively, represented by and ψ_2, pooled over all firms and all years. Our demographic variables, $x_{i,t-1,j}$, have within-firm slopes captured by β_j, j=1...J. Remaining control variables are denoted by $z_{i,t-1,k}$ and have within-firm slopes of θ_k. Lastly, $\varepsilon_{i,t}$ is a normally distributed error term.

For the analysis of coping with problem loans, I introduce to the model two additional sets of coefficients, λ_j and δ_j. The new terms parameterize the interactions of our demographic variables with management and director turnover, respectively, and therefore allow us to test hypotheses H1b,c—H5b,c. The model for the dependent variable (provision for loan loss) becomes:

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[2] Autocorrelation may also bias parameter estimates because of factors that change over time within firms, but are not included in the model. For example, firms may have cycles of lending practices that have naturally evolving patterns that change in coherent, but unforeseeable ways over time. Therefore, for each of the models reported I internally estimated the effect of a serial correlation term in a first-order autoregressive model, as described in Hsiao (986, p.54-55), after controlling for the lagged independent variables. In none of these analyses did I find significant residual autocorrelation.

$$y_{i,t} = \alpha_i + \gamma_t + \psi_1 \cdot \mathrm{TO}_{i,t\text{-}1,\mathrm{man}} + \psi_2 \cdot \mathrm{TO}_{i,t\text{-}1,\mathrm{dir}} + \sum_{j=1}^{J} \beta_j \cdot x_{i,t-1,j} + \sum_{j=1}^{J} \lambda_j \cdot x_{i,t-1,j} \cdot \mathrm{TO}_{i,t\text{-}1,\mathrm{man}} + \sum_{j=1}^{J} \delta_j \cdot x_{i,t-1,j} \cdot \mathrm{TO}_{i,t\text{-}1,\mathrm{dir}} + \sum_{k=1}^{K} \theta_k \cdot z_{i,t-1,k} + \varepsilon_{i,t}$$

The strict assumptions of the normal regression model are violated, because our primary dependent variable is skewed and only approximately continuous (adjusted write-offs is defined as continuous, though bounded). While the truncation and skewness are potentially problematic, these features are shared by the independent variables or are accounted for by the firm effects, allowing us to make the a priori working assumption of symmetric disturbances. In other words, it is the between-firm distributions that are skewed, and not the within-firm distributions. I confirmed the validity of this assumption with diagnostic plots in a post-hoc residual analysis (not reported here).

The remaining issue in obtaining the fixed-effects estimates is that of colinearity among the predictor variables. It might be expected that some of the independent variables are correlated within firms over time. For instance, larger boards have more room for diversity. Table 2 displays first-order correlations among all of the variables used in our analyses. The correlations among all of our independent and control variables are quite modest.

Results

Table 3 contains the first set of results from the panel regressions, providing the effects of board demography and director background on subsequent problem loans. Table 3 is comprised of two separate models, one in each column, which are distinguished by the measure of problem loans that is used. The dependent variables are adjusted loan delinquencies and adjusted net loan loss, respectively appearing in columns 1 and 2. Each model displays 10 coefficients, which can be segmented into two sets of independent variables: measures of (1) board strength and (2) controls. The first five of the row variables operationalize board strength in terms of board demography and director background. Rows 6-8 control for management characteristics, while rows 9 and 10 control for the potential effects of turnover on subsequent loan problems. All models also include, as controls, unreported fixed firm effects, and fixed year effects. Row 11 in each column gives the change in within-firm R-square attributable to the set of variables in the model that are presented, while row 12 gives the full R-square including the unreported effects.

The first 5 rows of the table contain the results for hypotheses H1a—H5a. Recall that this set of hypotheses predicts that board strength, operationalized through board size, homogeneity, tenure, independence, and relevant experience, should decrease problem loans. For the first measure of problem loans, adjusted loan delinquencies, all of the effects are in the predicted direction, with 4 out of 5 significant beyond the conventional .05 level. The effects of board strength on adjusted net loan loss are all in the predicted direction and significant. The lessened significance of board strength on loan delinquencies can be explained by the smaller sample size, due to missing data. The consistency in the signs and magnitudes of all the effects between models 1 and 2 is remarkable, and suggests no particular bias in the smaller sample. Overall, the support of hypotheses H1a—H5a is quite strong. Increases in board size, homogeneity, independence, tenure and relevant experience subsequently reduce loan delinquencies and net loan losses within banks. Year-to-year changes in these measures in a given bank account, on average, for 5% of the year-to-year variation in net loan losses and as much as 8% of the year-to-year variation in loan delinquencies.

Table 4 contains the results of the tests of the responsibility-shift hypotheses (H1b,c—H5b,c). This table displays the effects of board demography and director background on coping with problem loans. Table 4 is comprised of four separate models, one in each column. The models are distinguished by the independent and control variables that are used. All four models use subsequent adjusted provision for loan loss as the dependent variable. Models 1 and 2 control for prior adjusted loan loss reserve as a measure of accumulated funds for problem loans, while models 3 and 4 use prior adjusted loan delinquencies to control for the actual level of problem loans.

The first model in each set (1 and 3) display only the main effects and control variables, adding only the control for problem loans to the independent variables used in Table 3. These models provide a baseline so that one can see the additional explanatory power resulting from the board-strength-by-turnover interactions. The second model in each set (2 and 4) includes the board-strength-by-turnover interactions. As such, models 2 and 4 test the responsibility-shift hypotheses and are the major focus of our discussion.

Models 2 and 4, in Table 4, each display 22 coefficients, one in each row. The 22 rows are segmented into four sets of variables. The first five rows in each model contain the effects for the board strength variables as main effects in the model. The results are entirely consistent with those of Table 3. Rows 6-10 and 11-15 in each model respectively present effects for the interactions between the board strength variables and management turnover and director turnover. Rows 16-22 include as controls prior problem loans, management characteristics, and turnover main effects. Unreported but included in all models are fixed firm effects, and fixed year effects. Row 23 in all columns gives the change in within-firm R-square attributable to the set of variables in the column, while row 24 contains the full R-square including the unreported fixed effects.

The results in Table 4 bear out the responsibility-shift predictions of H1b,c—H5b,c. For all operationalizations of board strength, the board-strength-by-management-turnover interactions are uniformly negative, as predicted, while the coefficients of board strength by director turnover are all uniformly in the predicted positive direction. These results were similar no matter whether prior loan loss reserves (model 2) or delinquencies (model 4) were used as controls. For the negative board-strength–by-management-turnover effects in rows 6-10, we find, for both model 2 and 4, 4 out of 5 coefficients to be significant beyond the conventional .05 level. For the positive board-strength-by- director-turnover effects, significance is beyond .05 in every case, both for model 2 and 4. Added hierarchically, the board-strength-by-management-turnover interactions and board strength-by-director-turnover interactions separately improve model fit, in terms of the within-firm R-square,

at or beyond the .05 level of significance. To summarize the results in Table 4, board size, homogeneity, tenure, independence, and relevant experience each decrease the effect of management turnover on write-offs and increase the effect of director turnover on write-offs, controlling for the level of problem loans.

We now turn to a final set of results to test the more conventional agency-theory explanation of the effects of boards of directors. Agency theory, in its original form, would predict that managers are held more accountable by stronger boards, rather than having their loan responsibility shifted to directors. The agency prediction that board strength increases accountability of managers would clearly be consistent with our results showing that stronger boards decrease problem loans and that director turnover precedes write-offs when the board is strong. It also might be consistent with the negative board-strength-by-management-turnover interactions. However, a discriminating test between traditional agency explanations and our responsibility-shift hypothesis comes in examining whether write-offs precede management turnover when the board is strong. Management turnover was not found to be affected by loan losses in prior research (Staw, Barsade, and Koput, 1997), and no effect is predicted by our responsibility-shift hypothesis. Yet such an effect is mandated by agency-theory's argument concerning increased accountability; namely that the board should discipline (force turnover) on management a course of action has failed. Thus, when a board is strong, greater write-offs should lead to increased turnover.

From Table 5, one can see whether board strength induces an effect of write-offs on management turnover. Table 5 contains two columns, each modeling subsequent management turnover as the dependent variable. Looking first at column 1, we see from row 11 that the effect of adjusted write-offs on management turnover is still not significant, even after controlling for board strength. Only one measure of board strength has a main effect on management turnover, the relevance of directors' backgrounds to their banks' lending fields, and that effect is negative. The more relevant the directorial makeup of the board, the lower is management turnover. Most important, there were no significant interactions of board strength and write-offs on management turnover. As shown in rows 6-10 in the second column of Table 5, all of the board-strength-by-loan-loss interactions are far from significant, with a mix of positive and negative signs. Thus, the absence of an effect of write-offs on turnover in prior research does not appear to be due to the failure to account for the strength of boards of directors.

Discussion

The results provide ample evidence of the influence of boards of directors. Some of the effects observed fit well with an agency theory perspective on corporate governance. Banks, for example, appear to incur fewer loan delinquencies and loan losses with a strong board of directors, just as one would expect with increased oversight and accountability. However, many of the results do not fit so neatly within the agency theory framework. Several board characteristics that have elsewhere been shown to alleviate the principal-agent problem were here demonstrated to simply displace the agency problem. Having strong directors not only weakened the link between managerial turnover and write-offs, but also introduced a link between director turnover and write-offs. Thus, the de-escalation effect of turnover, a functional mechanism that allows organizations to recognize and cope with adversity, was not facilitated by having a strong board of directors. Strong boards simply displaced the responsibility and persistence effects from management onto directors. Hence, the interplay of management and directors may be much more complicated than those originally envisioned by agency theory.

The results imply that it may be useful for agency theory to revisit its stark assumptions about the psychology of managers and directors. As Perrow (1986) has observed, agency theory ignores the political and interpersonal aspects of corporate governance. Directors are more than repositories of information about managers' behavior to be reported to owners—they have interests to protect, just like managers and owners (Mallette and Fowler, 1992), and bear responsibility for the strategies and policies of their organizations. And, as past research has shown, managers are more than hyper-rational cogs in the organizational works, they are also subject to nonrational processes. As these banking data demonstrate, boards of directors may also be the objects of these processes in such a way that the interests and responsibilities of directors may influence the behavior of managers.

In many ways our "responsibility-shift hypothesis" provides a rather pessimistic view of organizational governance. It implies that problems such as escalation cannot be resolved by increased accountability. Problems like escalation simply move on to the shoulders of whomever is in charge, be it managers or directors. Such a harsh conclusion may, of course, be as much of an overgeneralization as the agency argument it seeks to replace. The data did, in fact, show that board strength was associated with fewer loan problems overall, and lessened persistence in some aspects. Thus, it is likely that both agency theory and the responsibility-shift hypothesis have something to offer as partial explanations of organizational behavior. Integrating these explanations may require adopting the perspective espoused by some sociologists (Putterman, 1984; White, 1985) that agency is an authority relationship, rather than a simple contract. In this view, "managers are agents not of the shareholders, but of the board, while the board is conceived not as an agent of shareholders but as an independent institution" (Eisenberg, 1976: 2-3). Authority spills over beyond the narrow bounds of expressed demands, often with unanticipated consequences.

In practical terms, the data showed that a strong board could reduce the scale of problem loans. But it would be wise to add a warning for owners who would appoint a strong board in hopes of eliminating the basic agency problem. Because simple increases in accountability resulted in more complicated and unanticipated results, the agency perspective should not be regarded as a cure-all. One solution may be to train directors to be aware of the potential for persistence, so that their monitoring can specifically focus on this managerial shortcoming. These and other techniques may work as well or better than the simple tightening of accountability and hierarchical control presumed by agency theory.

I believe the results have implications beyond the banking industry. Strategy researchers have shown that strong management teams lead to resolute behavior in enacting policy decisions—to "stay the course" in colloquial terms. It is widely assumed that this persistence is to be desired. To the extent that this strategic persistence relies on commitment (Milliken and Lant, 1991), I join those who caution that there may be a negative side (Finkelstein and Hambrick, 1990; Wiersama and Bantel, 1992), and that turnover may be necessary for the organization to "unlearn" from its prior success (Lant, Milliken, and Bantra, 1992; Virany, Tushman, and Romanelli, 1992). However, the findings suggest that a strong board may inhibit successful strategic re-orientation after turnover in the top management team. Those remaining in the organization may find a stronger symbolic message in the continuity of directors than in the turnover of managers.

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Table 1: Descriptive Statistics: Characteristics of Banks' Boards, Top Management Teams, and Loan Portfolios

	Mean	Standard deviation	Min	Max	No. of Bank-Years
Board Size	7.6392	2.5784	2	19	1056
Board Homogeneity	.3217	.1630	.12	1	1055
Board Tenure	8.3543	4.7587	0	27	1056
Board Independence	.8704	.1030	0	1	1056
Board Relevant Experience	.1124	.1062	0	.4538	1056
Board Turnover	.6353	1.2394	0	9	1056
Management Size	3.9353	1.6624	1	12	1051
Management Tenure	5.6864	4.4072	0	31	1051
Management Experience	21.9056	8.2859	0	57	1051
Management Turnover	.6013	.9175	0	7	1051
Adj. ll reserve	.0120	.0099	0	.0978	1185
Adj. Prov ll	.0075	.0094	0	.1188	1185
Adj. net ll	.0062	.0108	0	.1562	1185
Adj. Deliq	.0418	.0354	0	.2824	444

Note—132 banks observed over a 9 year period (79-87). All measures are taken over all bank-years except where data was missing from the Findley Reports. Turnover measures taken over bank-years with at least 1 person in the relevant group.

Table 2: Within-firm Correlations among Characteristics of Management and Directors

Variable	1	2	3	4	5	6	7	8	9
Board size									
Board homogeneity	-.2802								
Board tenure	-.1791	.0438							
Board independence	-.0288	.2564	.1232						
Board relevant experience	.0715	-.1103	.0482	.0238					
Board turnover	.4091		.1184	.0385	.0207				
Management size	-.0905		89	-.0684	.0170	.0075			
Management tenure	-.0110	0550	6	.0230	.0321	.0336	0853		
Management experience	-.0067	-.0544	.0950	-.0783	.0177	.0115	-.0378	.2710	
Management turnover									

Table 3: Results of Panel Regressions: Effects of Board Demography and Director Background on Problem Loans

Independent Variables	Dependent Variable= Adjusted	Dependent Variable= Adjusted Net Loan Loss
1. board size	-.0354 (.0135)*	-.0494 (.0285)*
2. board homogeneity	-.3508 (.1618)*	-.5862 (.2540)*
3. board tenure	-.0354 (.0231)	-.0403 (.0204)*
4. board independence	-.8725 (.4775)*	-.8525 (.3269)*
5. relevant experience	-.9997 (.4678)*	-1.7150 (.9787)*
6. ize	-.3992 (.3201)	-.0255 (.0349)
7. mgt tenure	-.0443 (.2591)	.0090 (.0199)
8. mgt experience	.0503 (.0767)	-.0124 (.0074)
9. mgt TO	.1414 (.0366)+	.1503 (.0427)+
10. director TO	5 (.0301)	.0080 (.0322)
11. a r2 w/in	.0884	.0507
12. R2	.5516	.3533
1	438	1049

Notes—Standard errors in parentheses. Significance levels:* = p<.05 1-tailed, +=p<.05 2-tailed ,~=p<.10 2-tailed. All models include firm and year fixed effects (dummy variables).. Provision for loan loss, loan loss reserve, and loan delinquencies adjusted for total loans.

Table 4: Results of Panel Regressions: Effects of Board Demography and Director Background on Coping with Problem Loans

Independent Variables at time t-1	Dependent Variable = Adjusted Provision for Loan Loss at time t			
1. board size	-.0529 (.0251)*	-.0445 (.0191)*	-.0541 (.0349)	-.0520 (.0445)
2. board homogeneity	-.8645 (.3862)*	-.5986 (.2453)*	-.6959 (.3686)*	-1.5017 (.8125)*
3. board tenure	-.0127 (.0174)	-.0117 (.0183)	-.0115 (.0156)	-.0104 (.0126)
4. board independence	-1.3300 (.4480)*	-.9172 (.3729)*	-1.1164 (.3833)*	-.4231 (.4710)
5. board relevant experience	-1.7377 (1.0553)*	-1.3557 (.4099)*	-3.3309 (1.6315)*	-1.7931 (.6540)*
6. board size x mgt TO		-.0110 (.0047)*		-.0092 (.0090)
7. board homog. x mgt TO		-.0334 (.0265)		-.6039 (.3222)*
8. board tenure x mgt TO		-.0473 (.0087)*		-.0331 (.0090)*
9. board indep. x mgt TO		-1.2104 (.3004)*		-1.7737 (.4920)*
10. board rel.exp. x mgt TO		-1.4996 (.8178)*		-2.2620 (1.1283)*
11. board size x dir TO		.0181 (.0080)*		.0093 (.0049)*
12. board homog. x dir TO		.1662 (.0937)*		.3765 (.1689)*
13. board tenure x dir TO		.0090 (.0054)*		.0120 (.0048)*
14. board indep. x dir TO		.6656 (.3315)*		.6680 (.3779)*
15. board rel.exp. x dir TO		.8112 (.3310)*		.4051 (.1281)*
16. adj. Loan loss reserve	-3.7608 (4.8198)	-4.4659 (4.7847)		
17. adj. Loan delinquencies			.4380 (.4647)	.1358 (.1393)
18. mgt size	-.0209 (.0269)	-.0181 (.0290)	.0807 (.0437)	.0137 (.0384)
19. mgt tenure	.0045 (.0169)	.0104 (.0167)	-.0170 (.0308)	-.0392 (.0267)
20. mgt experience	.0048 (.0063)	.0024 (.0062)	.0007 (.0109)	-.0111 (.0092)
21. mgt TO	.1900 (.0363)+	1.6619 (.3713)+	.0811 (.0471)~	.0855 (.0578)~
22 dir TO	-.0120 (.0275)	.7455 (.3614)+	-.0124 (.0380)	.7517 (.0996)+
23. delta r2 w/in	.0563	.0995	.0702	.3747
24. R2	.3874	.4271	.7155	.8087
25. N	1047	1047	410	410

Notes—Standard errors in parentheses. Significance levels:* = p<.05 1-tailed, +=p<.05 2-tailed ,~=p<.10 2-tailed. All models include firm and year fixed effects (dummy variables).. Provision for loan loss, loan loss reserve, and loan delinquencies adjusted for total loans.

Table 5: Results of Panel Regressions: Effects of Board Demography and Loan Losses on Management Turnover

Independent Variables at time t-1	Dependent Variable = Management Turnover at time t	
1. board size	.0463 (.0300)	.0454 (.0326)
2. board homogeneity	-.1174 (.3406)	-.0914 (.3554)
3. board tenure	.0157 (.0151)	.0154 (.0157)
4. board independence	-.2935 (.3951)	-.2765 (.4220)
5. board relevant experience	-1.8585 (1.1094)~	-1.9570 (1.2316)~
6. board size x adj. net loan loss		.2790 (1.4815)
7. board homog. x adj. net loan loss		-.4457 (1.9671)
8. board tenure x adj. net loan loss		.0920 (.8493)
9. board indep. x adj. net loan loss		-.8729 (3.4752)
10. board rel.exp. x adj. net loan loss		.4672 (.7859)
11. adj. Net loan loss	3.9833 (2.8966)	5.0034 (3.8403)
12. mgt size	.2636 (.0243)+	.2631 (.0250)+
13. mgt tenure	.0545 (.0148)+	.0544 (.0149)+
14. mgt. Experience	.0041 (.0056)	.0038 (.0056)
15. delta r2 w/in	.1128	.1135
16. R2	.3571	.3576
17. N	1048	1048

Notes—Standard errors in parentheses. Significance levels:* = p<.05 1-tailed, +=p<.05 2-tailed ,~=p<.10 2-tailed. All models include firm and year fixed effects (dummy variables).. Provision for loan loss, loan loss reserve, and loan delinquencies adjusted for total loans.