CRASH TEST WITHOUT DUMMIES:

A LONGITUDINAL STUDY OF INTERORGANIZATIONAL LEARNING

FROM FAILURE EXPERIENCE IN THE U.S. COMMERCIAL BANKING INDUSTRY,

1984-1998

by

Ji-Yub Kim

A dissertation submitted in partial fulfillment of

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ABSTRACT

Contemporary management theory, business school curricula, and practitioner oriented advice has what I call a "success bias," with a strong focus on how firms can learn from successful firms through the adoption of their best practices. In my dissertation I pursue the alternative notion that failure by other organizations can also have a positive value to organizational performance.

Theories of interorganizational learning imply that failure of a subset of firms in a population may produce "survival-enhancing learning" by other firms that observed the failure. They also imply that near-failure (defined as being on the brink of failure followed by recovery) may have even grater value under some circumstances. I examined these claims systematically by using a sample of all of the 2,724 FDIC-insured U.S. commercial banks chartered since 1984 over a 15-year period (1984-1998). Additionally, I explore the role of competitive dynamics and different dimensions of proximity in the interorganizational learning process.

Results support theories of interorganizational learning from failure by providing evidence that failure and near-failure experience of others can produce "survival-enhancing learning" by remaining firms. Specifically, I find that industry near failure experiences enhanced survival-enhancing learning, while industry prior failure experiences do not. Results also show that failure and near failure experience in a related but separate industry influence survival-enhancing learning in banks. Viewed as a whole the pattern of results point to potentially conflicting influences of the visibility versus applicability of vicarious

experience and to a complicated relationship between the effects of interorganizational learning and competitive dynamics among firms.

My dissertation contributes to theories of vicarious learning by systematically examining predictions that failure can produce survival-enhancing learning, by comparing total failure to near-failure among one's own industry and competitors, and by testing inter-industry effects. It deepens the growing literature on subtle influences of interorganizational learning and special features of learning from failure versus success. It also provide valuable insight for managers who seek to obtain sustainable competitive advantage by learning from the experience of others, and to industry leaders seeking to enhance the overall survival and prosperity of groups of organizations.

To my parents who dedicated their whole life to their children

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CHAPTER 1

INTRODUCTION

1.1 Learning from Failure

Organizational learning has become a popular notion in the domain of organizational studies (March, 1981; Levitt & March, 1988; Huber, 1991; Argote, 1999; March, 1999) and strategic management (Lant & Mezias, 1990; Hamel, 1991; Levinthal & March, 1993; Nonaka & Takeuchi, 1995; Spender & Grant, 1996). Historically, this literature has emphasized organizations' learning from their own experience (Yelle, 1979; Epple, Argote, & Devadas, 1991; Miner & Mezias, 1996; Szulanski, 1996), but in recent years learning researchers have begun to suggest that learning may be produced by various interactions among organizations (Cohen & Levinthal, 1990; Darr, Argote, & Epple, 1995).

This work differs from neoinstitutional research on imitation because it emphasizes inference and knowledge acquisition rather than blind imitation. It also assumes there are important obstacles to effective interorganizational learning, in contrast to assumptions of relatively smooth knowledge transfer in traditional spillover research (Levitt & March, 1988; Darr et al., 1995). Finally, some researchers argue that repeated vicarious learning by individual organizations can produce important, nonobvious patterns in the distributions of practices and prosperity of whole populations of organizations, in some cases through collective norms and routines (Miner & Haunschild, 1995; Baum & Ingram, 1998).

A systematic assessment of research on interorganizational learning reveals, however, that it has a rather strong 'success' bias. Studies of interorganizational learning tend to focus on the replication of routines, strategies and designs of apparently successful organizations (Burns & Wholey, 1993; Conell & Cohn, 1995). Theories still tend to emphasize imitating actions of successful organizations rather than avoiding the actions of failed organizations (Haunschild & Miner, 1997) although some researchers are starting to look at learning from safety and environmental incidents as is done in the operation literature (March, Sproull, & Tamuz, 1991).

The success bias is more apparent in the popular management literature that generally emphasizes how managers can replicate strategies of successful firms (Tucker, Zivan, & Camp, 1987; Porter, 1996). For example, during the 1980s and throughout the early 1990s, a great deal of managerial efforts were devoted to benchmarking successful Japanese firms and imitating their practices such as Kaizen and Just-in-Time (JIT) manufacturing techniques. Both the scholarly literature on vicarious learning and the managerial applied literature tended to ignore the potential value of "post-mortem" benchmarking of failed firms for processes of interorganizational learning.

In much organizational research, organizational failure typically represents a dependent variable. Causal models in the literature emphasize what predicts failure and how to prevent it, but do not address how failure influences later learning by observers. Although a handful of recent studies have begun to investigate systematic empirical evidence linking learning to organizational failure (Ingram & Baum, 1997b; Miner, Kim, Holzinger, & Haunschild, 1999), our understanding of issues related to potential learning from failure is limited.

In my thesis I explore the potential value of failure as a source of interorganizational learning by using industry level failure as an independent variable. More specifically, by building on the "survival-enhancing learning" research conducted by Baum and Ingram (1998), I examine whether failure of a subset of firms in an industry can enhance the survival prospects of firms that observed the failure. I ask three broad research questions aimed at deepening understanding of interorganizational learning and proposing a theoretical framework that can guide future research on this topic by using failure as an independent variable.

(1) Does failure of individual firms or a particular subset of firms in an industry provide an opportunity for survival-enhancing learning by the remaining firms that observed the failure?

(2) Does the industry near-failure experience[1] have a greater or weaker survival-enhancing learning effect on firms in the industry compared to the industry failure experience?

(3) How do different forms of proximity influence a firm's learning from failure? Specifically, do failures and near-failure experience among (a) the same or a competing industry or (b) local or distant markets have different survival-enhancing effects on a focal firm?

I investigate survival-enhancing learning using a sample of all FDIC insured U.S.

[1] In this thesis, 'near-failure experience' refers to the experience of firms that were on the brink of failure due to substantial performance decline but did not fail and recovered from the low performance state. See Chapter 2 for more details.

commercial banks chartered since 1984 over a 15-year period (1984-1998).

1.2. Theoretical Perspectives and Conceptual Framework

1.2.1 Main Literature Base

I mainly draw upon literature from organizational learning (Levitt & March, 1988; Miner & Mezias, 1996; March, 1999) and strategy and knowledge management (Burgelman, 1988; Nonaka, 1994; Bettis & Prahalad, 1995; Leonard-Barton, 1995) to build theories and hypotheses in my thesis. The underlying approach of my thesis is organizational theory in tenor and content. Literature in strategic management was actively explored and provided a foundation of practical and managerial implications proposed in this study because one of the primary objectives of this study is to contribute to the recent stream of research that aims to fill the gap between the organizational theory and the management practice (Berry & Elmes, 1997). I also examined my research questions and the implications of the empirical results in the context of various theoretical claims including population level learning (Miner & Haunschild, 1995), organizational ecology (Hannan & Freeman, 1989), and neoinstitutional theory (DiMaggio & Powell, 1983; Scott & Meyer, 1994; Suchman, 1995).

I use an organizational learning framework to conceptualize interorganizational learning from failure and near-failure experience. Specifically, I adopt the "survival-enhancing learning" framework to construct empirical models by defining the differential survival rates (i.e., reduced risk of failure) as an outcome of interorganizational learning from failure and near-failure experience (Baum & Ingram, 1998).

Learning research has been built on two distinctive but related traditions: (1) the behavioral learning perspective and (2) the cognitive learning perspective (Miner & Anderson, 1999). Inaugurated by Cyert & March's influential work, *the Behavioral Theory of the Firm* (1963), the first tradition focuses on learning outcomes and explores how firms change their behaviors as a result of learning. Change in behaviors represents the key dependent variable of empirical research on this tradition (Baum & Ingram, 1998; Haleblian & Finkelstein, 1999). The second tradition defines learning as a cognitive process and explores the mental models and processes involved in learning such as knowledge creation and transfer (Argyris & Schon, 1978; Argote, 1999). I follow the behavioral tradition in building empirical models and proposing hypotheses in my thesis.

Literature on organizational learning posits that not only individuals but also groups and entire organizations can learn (Levitt & March, 1988; Huber, 1991; Argote, 1999). Miner and Haunschild (1995) proposed that learning could even occur at the population level. Theories of organizational learning identify three levels of organizational learning including (1) organizational level learning, (2) interorganizational level learning, and (3) population level learning. While formal hypotheses in this thesis were tested *at the interorganizational level*, I actively explored the implications of other levels of learning because an organizational learning process usually, if not always, unfolds as a multilevel process, and the three levels of learning often occur simultaneously and interdependently. The outcomes of learning at one level frequently influence the outcomes of learning at another level.

Organizational learning is an amalgamation of ideas that attempt to carve out a theory of organizational change that avoids both the overly rationalized view of adaptation

(Lawrence & Lorsch, 1967) and the deterministic view of environmental selection (Hannan & Freeman, 1984). Miner & Mezias (1996) succinctly characterized the organizational learning theory as "a sensible middle ground between the arrogant theories of total human control and sad theories of human helplessness (p88)." As such, models of organizational learning have been informed by a number of theoretical streams including economics (Nelson & Winter, 1982; Ghemawat & Spence, 1985), organizational theory, social and industrial psychology (Argyris & Schon, 1978; Weick, 1979), and diffusion of innovation (Roger, 1995). These contributions have helped the organizational learning theory to emerge as a "rich" theory but at the same time, made it difficult to identify the "core" or "nugget" of the theory.

In particular, despite the exploding interest in the concept of interorganizational learning, empirical work in the domain of interorganizational learning is limited (Miner & Mezias, 1996). The handful of existing empirical research on interorganizational learning has not been guided by a single theoretical framework, and the results have not been integrated to advance the learning theory as a whole (Huber, 1991). Because interorganizational learning is an inherently multidimensional and multilevel process, which operates simultaneously to produce a learning outcome, the complete understanding of this phenomenon may require an integration of multiple facets of interorganizational learning. This demand calls for efforts to put together currently scattered pieces of puzzles in interorganizational learning theory and to propose a conceptual framework that may guide future empirical research on interorganizational learning.

1.2.2 Proximity of Learning Sources

In my thesis I attempt to integrate the four key dimensions of interorganizational learning in terms of proximity of the learning sources, proposing an integrated conceptual framework for research on interorganizational learning. TABLE 1 introduces the key dimensions explored in my thesis. I propose and test formal hypotheses for the physical space and the industry segment dimensions. The time dimension was explored by investigating the effects of congenital learning from failure and operating experience and comparing them with failure experience since founding. Some implications of the trait dimension were explored in the inductive parts of this thesis (e.g., interviews).

TABLE 1
Conceptual Framework of This Thesis

	Proximal	**Distant**
Physical Space	Learning from *local* firms	Learning from *nonlocal* firms
Industry Segment	Learning *within* industry segment	Learning *across* industry segment
Time	Learning from *recent* past experience	Learning from *distant* past experience
Trait	Learning from firms with *similar* traits	Learning from firms with *different* traits

1.2.3 Boundary Conditions of Interorganizational Learning

Theories and prior studies in interorganizational learning identify at least four key boundary conditions that may influence learning outcomes. The first boundary condition is the *salience (or visibility)* of an event. It has been argued that firms are more likely to learn from a salient event because learning can occur only when learners are aware of sources of learning, and a salient event is more likely to be noticed by external observers, consequently providing them with a better opportunity for learning (March & Olsen, 1976; March et al., 1991; Haunschild & Miner, 1997).

The *richness (or value) of information* carried by an event represents the second key boundary condition. Even if a firm observes an event, it cannot learn from its observation unless the event provides information sufficient enough to change its behavior (Huber, 1991; March, 1999). In a sense, learning requires data enough to establish a causal relationship between an observed event and its outcome. Rich sources of information not only provide an unambiguous mental map to observers but also provide them with an opportunity to generate knowledge.

The third boundary condition is the *applicability of information* learned from an event. Previous studies have shown that learning from inappropriate knowledge and information can harm organizational performance. Firms may fall into a competency trap by learning from old, outdated knowledge (Barnett & Hansen, 1996; Ingram & Baum, 1997b), and may harm their performance by learning from nonlocal knowledge because such knowledge could not be properly implement to their current situation (Greve, 1999).

Finally, the *competitive dynamics among learning firms* may influence learning outcomes because competing firms often learn simultaneously, creating a self-reinforcing learning loop (Barnett & Hansen, 1996). It has been argued that organizational learning is a source of competitive advantage through improved efficiency (Yelle, 1979; Epple et al., 1991). However, a firm's improved efficiency achieved by organizational learning may not be translated into higher competitiveness when its competitors learn simultaneously in the network of competition.

These boundary conditions of organizational learning constantly interact with the key dimensions of interorganizational learning and determine the true outcomes of interorganizational learning. I explore the potential effects of these interactions in my dissertation.

1.3 Research Design

In this study I combine exploratory investigative work with the quantitative hypothesis testing. Both qualitative and quantitative research methods including interviews, surveys and statistical analyses were used to derive theories and test formal hypotheses in the context of the U.S. commercial banking industry. The inductive part of this study not only provided background information on the U.S. banking industry but also informed the statistical models.

I use longitudinal data from the U.S. commercial banking industry to test key arguments, and draw inferences from formal analyses. Data on all FDIC-insured U.S. commercial banks chartered since 1984 over a 15-year period (1984-1998) was collected and used to test hypotheses. Although data on all FDIC-insured U.S. commercial banks in existence during the study period was collected, a cohort study design was selected to eliminate potential specification biases that might be introduced by using a sample for which some variables were left-censored (Allison, 1984; Guo, 1993; Blossfeld & Rohwer, 1995).

1.4 Contribution

Despite the growing volume of research in the domain of interorganizational learning, we still lack a major body of empirical literature on vicarious organizational learning and its consequences. I begin to address this gap in the literature. This thesis advances our basic understanding of interorganizational learning by proposing a conceptual framework and integrating fragmented empirical research on interorganizational learning.

The results of this study broadly support and offer important extensions of theories of interorganizational learning from failure of others (Miner et al., 1999). This thesis illuminates the potential value of failure and near-failure experience as a source of interorganizational learning by examining the effects of industry failure and near-failure experience on the survival of firms in the industry. The study also highlights links between interorganizational learning and competition, one of the most crucial issues in contemporary strategy and management theory. It will advance the framework of population level learning and help us build a more comprehensive theoretical approach to learning from failure, success and variance.

This thesis provides an important practical concept to managers by encouraging them to look at failures of other firms rather than blindly imitating the strategies and practices of only successful firms, and by providing some insights into the relative value and issues related to different learning options (e.g., local experience versus nonlocal experience). This work also has value for policy makers, trade associations and other industry groups seeking to enhance the prosperity of an entire population of organizations. It raises the question of learning from the failure of members of the collectivity, provide evidence about the potential for using individual failures to improve the lot of survivors, and provide hard data on the relative impact of near and total failures on other firms in the population.

CHAPTER 2

THEORY AND HYPOTHESES

In this chapter I present the hypotheses that predict the causal relationships between the key research variables and the dependent variable. The concepts, theories and literature that provide the foundation of the hypotheses are reviewed in this chapter. The basic assumptions and industry boundary conditions drawn from my exploratory inductive study (i.e., interviews and survey) are also introduced.

I focus on relationships between industry failure and near-failure experience and the risk of bank failures, and argue that the industry failure and near-failure experience enhance the survival prospect of banks, producing survival-enhancing learning. First, I present four central hypotheses with regard to survival-enhancing learning effects from industry failure and near-failure experience in both intrapopulation and interpopulation setting. Second, a set of hypotheses, which specifically compare survival-enhancing learning effects from industry failure experience with survival-learning effects from near-failure experience, was proposed. Finally, I propose a set of hypotheses that predict differential survival-enhancing learning effects from local and nonlocal industry failure experience.

2.1 Survival-Enhancing Learning from Industry Failure Experience

In this thesis, the process of organizational learning is defined as occurring when the experience of a learning agent (e.g., individual, group, organization or industry) systematically alters its future behavior and/or knowledge (Miner & Mezias, 1996; Argote, 1999). Behavioral learning processes involve changes in practices, strategies or organizational routines while cognitive learning involves psychological or mental processes. Organizational learning theories address learning outcomes such as improved productivity or error reduction (Yelle, 1979; Argote, 1999). However, organizational learning does not assume the outcome of learning is inherently positive because learning may result in acquiring incorrect knowledge (e.g., superstitious learning) and may produce harmful outcomes (e.g., competency trap) (March, 1991). In my thesis I draw on behavioral learning theories to generate hypotheses about factors that enhances a specific learning outcome: *survival-enhancing learning*, which is defined as occurring when experience decreases the risk of failure of a firm (Baum & Ingram, 1998).

2.1.1 Intrapopulation Learning from Industry Failure Experience

Organizational learning can lead to a decrease in a firm's risk of failure because experience may help the firm to operate more efficiently (Yelle, 1979; Darr et al., 1995), to respond to competitive threats more effectively, or to understand its stakeholders' preferences better. This experiential learning process that leads to a decrease in an organization's risk of failure has been defined as "*survival-enhancing learning*" (Baum & Ingram, 1998).

Firms that actually fail presumably have no opportunity to learn from their own failure experience. However, when individual firms or a particular subset of firms in an industry fail, other firms in the industry are given an opportunity to observe and learn from the failure. Organizational learning theory implies that the remaining organizations may benefit from the failure of other organizations.

Prior research suggests several ways in which industry failure experience may produce the "survival-enhancing learning" by improving the survival odds of remaining firms. First, observing failures of others may prompt firms to scan their contexts for threats and take steps to resist the threats or adapt to emerging realities (Miner et al., 1999). Second, firms can simply avoid actions taken by failed firms, which in some cases might be an effective learning strategy (Haunschild & Miner, 1997). Third, valid inferences drawn from the failure of individual firms or particular subsets of firms in an industry could produce understanding of causal processes that could guide future actions of surviving firms in the industry (Sitkin, 1992).

One way to conceptualize the possible impact of prior failure is to think of each firm's fate as a "natural experiment" from the viewpoint of an industry as a whole, which provides the industry with data available for analysis and interpretation. Then the prior failure represents a measure of prior experience for the industry. Observing firms can use the data to check the validity of their current theories of how to survive, and to generate new ideas about ineffective versus effective strategies and actions (Miner et al., 1999). This form of learning from the failure of others can – although does not necessarily need to – go beyond simple avoidance of apparently ineffective or inefficient strategies, and involve developing causal maps that lead to new strategies and actions. Inferences drawn from such observation could enhance the probability that observing firms create and adopt better strategies, consequently decreasing the failure rates of the firms. In a recent empirical study, Baum and Ingram (1998) provided supporting evidence that "industry competitive experience," which was measured by the number of hotel chain failures, increased the survival chance of a hotel chain.

Models of organizational learning imply that learning from others' failure experience may be more fruitful than learning from others' success. When firms learn from others' success, they often apply a simple copying rule and attempt to imitate the exact strategies of the successful firms (Sitkin, 1992). This simple imitation may destroy the value of the strategy that is imitated because the outcome of such imitation is contingent to the various contexts of the environment in which they operate (Mezias & Lant, 1994; Anderson & Lawless, 1995).

A vivid example can be found in the collapse of the U.S. television manufacturing industry. When the U.S. television industry was threatened by the invasion of cost-efficient Japanese television manufacturers in the 1970s, the U.S. television manufacturers including RCA and Zenith responded by imitating their Japanese competitors' efficient manufacturing practices that were believed to be the Japanese firms' primary competitive advantage (Hamel & Prahalad, 1988). However, they were not aware of the Japanese firms' ability to cross-subsidize market-share battles. By the time the U.S. firms closed the cost gap, Japanese competitors had broadened their profit sanctuaries by rigorously expanding their international distribution systems and consolidating their brand names while the U.S. firms' sales were limited primarily to the U.S. market. Therefore, when a price war was initiated, the Japanese firms could subsidize their loss in the U.S. market with the profit from their well-protected domestic market and third country markets while the U.S. counterparts had few options. The major U.S. television manufacturers' blind imitation of seemingly successful strategies of

Japanese firms in combination with their inability to draw valid inferences from their observation of the Japanese firms' success eventually resulted in the virtual extinction of the U.S. television industry.

By contrast, firms learning from others' failure are less likely to blindly imitate the strategies of the failed firms. Instead, they may engage in an active interpretation of their observation, and try to find a differentiated way to apply the insights and lessons drawn from their interpretation, a process that Anderson and Lawless (1995) called "strategic learning."

Firms may also fall into a "collective" competency trap by learning from others' success even when simple replication of strategies and routines of successful firms provides them with short-term performance boost. Success increases slack that often facilitates unintentional innovation (Levinthal & March, 1993), and has been argued to be a source of self-confidence that promotes managers to take risks (Levitt & March, 1988). Success drives firms to exploit successful strategies and decreases the intensity of search and experimentation, increasing the opportunity cost of exploration (March et al., 1991; Levinthal & March, 1993). The lack of search and experimentation could lead firms to adopt a sub-optimal routine as a standard (Cowan, 1990), and lead them to fall into a competency trap (March, 1981; Levitt & March, 1988). As many firms in a population attempt to simply imitate successful firms and exploit seemingly successful routines, the strategies and routines in the population gradually become more homogeneous, and firms in the population may fall into a "collective" competency trap, which may incapacitate them when a competing population with a new way of competing emerges.

On the other hand, learning from failure of others may facilitate exploration of new strategies and routines because firms may begin searching for an alternative strategy that could prevent the failure they observed. This search will produce heterogeneity in the strategies and routines of firms in the population, which may prevent them from falling into a competency trap at the collective level as well as at the organization level.

The actions of parts of the airline industry in the 1980's also provide a practical illustration of the processes described here. Industry observers describe that the cut-rate, cut-throat route strategy adopted by many airlines after the 1978 deregulation to capture the newly created market opportunities led several major airlines including People Express and Braniff International to bankruptcy because the cut-throat strategy did not provide sufficient financial return to cover the costs incurred by their rapid expansion (Whitestone, 1983; Kharbanda & Stallworthy, 1985). Their failure was interpreted by other airlines to mean that a cut-rate, cut-throat route strategy might not be a viable strategic choice, and the surviving airlines slowed down rate competition and began implementing alternative strategies such as rigorous frequent flyer programs and improved customer services. To the degree that this shared experience produced a systematic change in the nature and mix of the routines enacted in the industry, it can be seen as one type of "population level learning" outcome (Miner & Haunschild, 1995). To the degree it changes the survival odds of the whole industry through shared collective norms, it can be seen as adaptive learning by the industry as a whole as well as for individual firms in the industry. These arguments lead to the first proposition:

Hypothesis 1a: *The industry failure experience since a firm's entry into the industry will decrease the failure rate of the firm.*

Literature on interorganizational learning implies learning from prior failures may not increase linearly or monotonically with the amount of failure experience because older experience becomes less useful as the industry changes and may eventually become obsolete (Darr et al., 1995; Ingram & Baum, 1997b; Baum & Ingram, 1998). Barney and Hesterley (1996) similarly proposed that the benefits of learning from recent experiences outweigh the costs of learning but learning from experience in the distant past may lead firms to adopt outdated routines, harming its performance by replicating strategies that worked well under different circumstances.

However, even relatively recent experience may not produce survival-enhancing learning when radical environmental shifts such as regulatory changes occur because firm behaviors and the consequences of such behaviors are likely to change (Barnett, Greve, & Park, 1994). These empirical results indicate that the temporal decay of industry failure experience may be a function of a combination of discontinuous environmental changes and continuous depreciation of past experience. Thus, I operationalize *the industry failure experience since entry for firm i at time t* as:

$$= \sum_{t_F}^{t_{RL}-1} \frac{Total\ Number\ of\ Failure_t}{Age} + \sum_{t_{RL}}^{t-1} Total\ Number\ of\ Failure_t$$

where t_F is the year when firm *i* was founded, *Total number of failure$_t$* represents the total number of failure at the current year *t*, t_{RL} represents the latest major environmental change, and *Age* represents a discount factor that depreciates values of *Total number of failure$_t$* over time to account for obsolescence of knowledge learned from failures in the past as a function of the age of each failure.

This operationalization is based on an assumption that knowledge gained from industry failure experiences since the most recent major environmental change does not depreciate while learning before the environmental change depreciates with time. In order to test the sensitivity of this assumption, I constructed and analyzed 5 sets of alternative measures based on different discount factor specifications.

$$= \sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Failure_t}{Discount\ Factor}$$

First, I did not discount the past experience by using a discount factor of 1. Second, I used the age of the failure experience as the discount factor. Third, the age^2 of the failure experience was used as the discount factor, which assumes a faster depreciation than the age discount. Fourth, the $\sqrt{age}$ of the failure experience was used as the discount factor, which assumes a slower depreciation than the age discount. Finally, I reset the learning from failure experience to 0 whenever there was a major environmental change.

2.1.2 Alternative Arguments

Released Resources. Failure of firms may affect surviving firms in different ways other than interorganizational learning, of course (FIGURE 1). For example, there is some empirical evidence in the population ecology literature that is consistent with the claim that failure of some firms can enhance the survival chances of the others (Baum, 1996). Carroll & Hannan (1989) found that the previous failure of U.S. breweries lowered subsequent failure rates. Similar findings were reported for California wine industry (Delacroix, Swaminathan, & Solt, 1989) and trade associations (Aldrich, Zimmer, Staber, & Beggs, 1994). These results are typically attributed to the increased resource availability arising from decreased competition: failure of a subset of competing organizations frees up resources for other organizations in the population, consequently increasing their life chances (Carroll & Delacroix, 1982). Additionally, the released resources could become a buffer in the market and reduce the level of competition.

Resource scarcity is critical to organizations' survival primarily when the population to which they belong has reached its "carrying capacity." In the early growth stage of a population, failure may be less important in terms of freeing resources because they are not tied up in existing organizations of the new form (Aldrich, 1998), making this argument less relevant in some settings. In contrast, vicarious learning from failure can occur at any point in the population's history.

The effect of interorganizational learning is achieved through transfer of information learned by observing a failure (i.e., non-rival goods) while the effect of increased resource is realized by the actual resources released by the failed firms (i.e., rival goods such as customers or employees). Thus, the relative impact of each effect is contingent to the relative importance of the information and the increased resource. If an industry (1) is populated with a large number of firms and (2) has a well-established information-sharing network, the learning effect may surpass the resource effect because failure of a firm may not release resources large enough to change the survival odds of remaining firms but may provide important lessons to many firms in the industry. The U.S. commercial banking industry that was studied in my thesis satisfies these criteria.

Prior research implies that effects of social processes (e.g., legitimation or interorganizational learning) might be stronger than effects of actual competition. Hannan and his colleagues found that competition is local and legitimation is global in the early 1900s automobile industry, and proposed that legitimation operates more broadly than competition (Hannan, Dundon, Carroll, & Torres, 1995). Although legitimation process may be independent to learning process (Van de Ven & Garud, 1994), I speculate interorganizational learning processes may follow a similar pattern with other social processes such as legitimation.

Survival of Stronger Competitors. Failure may remove weaker competitors from a population, consequently leaving only stronger competitors in the population. Because only stronger competitors will survive in the population as a result of prior failure, the reduced number of firms in the population does not necessarily imply weaker competition. In fact, a small number of stronger competitors may produce a stronger competition than a large number of weaker competitors as the industry consolidates and matures.

Regulatory Changes. Government actions and regulatory changes in response to failures in an industry affect subsequent failure rates. Changes in policies of major regulatory agencies can influence the survival chances of banks by creating externalities (Wade, Swaminatham, & Saxon, 1998). For example, the savings and Loan crisis in the 1980s spurred FDIC and other regulatory agencies to tighten up their review processes and the tighter regulatory actions forced many low-performance banks and savings and loan associations (S&L) to cease their operations. However, it is important to note that more strict regulatory reviews and actions can also enhance the survival prospect of banks because they can help problematic banks and S&Ls to turn around or they can prevent larger problems at the early stage.

These arguments constitute plausible alternative explanations and present potential threats to the internal validity of the empirical relationships explored in my dissertation, but remains primarily as an empirical question. Thus, I systematically address these issues by using a set of control variables.

2.1.3 Interpopulation Learning from Industry Failure Experience.

Firms can improve their viability by learning from firms in other industries. Motorola's success in Bandit project in the 1980s, for example, was often attributed to its extensive benchmarking efforts of firms in the seemingly unrelated industries such as Benetton and Wal-Mart (Smith, 1993). Some academic research has also shown that firms can learn from firms in a different industry. For example, Brittain and Wholey (1988) studied the interaction of different populations of electronic component manufacturers and implied firms often observe and learn strategies and technologies of firms in other populations.

Industries vary in the degree to which they scan and look to other industries for insight and practice. In industries where interpopulation competition is strong, competitive advantage does not result simply from adopting "best" strategies within the industry but arise from complex strategic interactions among firms in the competing industries (Barnett, 1990). In such industries, a firm may need to closely monitor and benchmark strategies of firms in the competing industry because its performance and viability may depend on the strategic moves of firms in the competing industry as well as those in the same industry.

The interpopulation competition is very strong in the commercial banking industry because at least three main populations including commercial banks, S&Ls, and credit unions compete with each other to a large extent. Interviews with industry experts suggested that bank managers constantly monitor and learn from organizations in the competing populations. These arguments imply that organizations may learn from failure experience of organizations in a competing population as well as those in the same population.

Hypothesis 1b: *The industry failure experience of a competing industry since a firm's entry will decrease the failure rate of the firm.*

2.2 Survival-Enhancing Learning from Industry Near-Failure Experience

Although failure is usually defined as a binary variable (i.e., failed or not-failed), the neighborhood of failure may be populated by several distinct processes. For instance, not all the firms that experience threats of failure actually disappear. Some firms that face an imminent failure often manage to survive for an extended period of time. Other firms recover from threatened failure by successfully implementing strategic reorientation. For example, Intel has become one of the most successful firms in the U.S. corporate history even after it lost its DRAM business that had been its core business (Burgelman, 1994).

TABLE 2 lists several variations of processes that are populated around organizational failure and summarizes relative advantages and disadvantages of each type of failure and near-failure process. It explicates three types of near-failure processes: (1) transition from satisfactory or high performance to near-failure, (2) extended stay in the near-failure state, and (3) transition from near-failure to satisfactory or high performance. These three near-failure processes may occur independently or may occur simultaneously, and each process has its own advantages and disadvantages in terms of the learning perspective. In this thesis, of particular interest are firms that were on the brink of failure due to substantial performance deterioration but did not fail and recovered from their low performance state, and this specific variation of failure experience is defined as near-failure experience. Theories of interorganizational learning imply that learning from near-failure may also generate the survival-enhancing learning (Lant & Mezias, 1990; Baum & Ingram, 1998; Miner et al., 1999).

Learning from near-failure experience may in fact induce a stronger survival-enhancing learning effect than does learning from failure experience under certain conditions. By observing failure of other firms, a firm can learn the symptoms of the demise and the "germ" that caused it but may not be able to learn the "vaccine" that can prevent or cure it. Learning from self-derived conclusions of observed failure provides a hypothetical but untried "vaccine" at most. In contrast, by learning from firms that nearly failed but managed to recover from the crisis, firms may benefit not only from the rich description of what happened (symptoms and germs) but also from a proven solution (a working vaccine).

When solving problems at hand, firms rarely start by stating a problem and then select a course of action that can solve the problem (Starbuck & Hedberg, 1977). Instead, they usually create potential actions without perceiving problems, and the pre-constructed actions are adopted when problems arise (Cohen, March, & Olsen, 1972). Thus, while the symptoms of failure and the germ that caused failure may be of interest, the working vaccine is of most practical interest to many firms that engage in interorganizational learning. For this reason, learning from near-failure may have a high potential to diffuse quickly, resulting in rapid changes in the mix of routines in an industry. Near-failure and recovery may also serve as an especially powerful trigger because it represents a highly visible event (Haunschild & Miner, 1997). These arguments lead to the following set of propositions.

Hypothesis 2a: *The industry near-failure experience since a firm's entry will decrease the failure rate of the firm.*

Hypothesis 2b: *The industry near-failure experience of a competing industry since a firm's entry will decrease the failure of the firm.*

2.3 Failure versus Near-Failure in Intrapopulation and Interpopulation Learning

The effectiveness and feasibility of interorganizational learning depends on two factors: (1) a firm's *awareness* of an event that can serve as a learning stimulus and (2) the *learning value* of the event. The awareness is affected by the visibility and the transferability of an event, and the learning value of an event is determined by many factors including the richness of information, the proximity and the duration of the observation, and the applicability of lessons learned from the observation (Levitt & March, 1988; March et al., 1991; Miner & Mezias, 1996). Because failure and near-failure experience are different in these aspects, they may produce differential outcomes.

Theories of interorganizational learning suggest several factors that may make learning from near-failure experience more effective than learning from failure experience. Because failure removes routines and practices of failed firms permanently from an industry, other firms in the industry may be unable to learn from the failure due to the ambiguity and paucity of the information, or they may draw incorrect inferences (Tamuz, 1987; Huber, 1991; Levinthal & March, 1993).

Near-failure experience, however, may provide a richer source of information because firms involved in near-failure are not removed from the industry, permitting closer observation of both their prior actions and the processes that occurred during the period before and after their near-failure periods. Second, because all learning must occur vicariously at the industry level with failure experience, such learning is less likely to incorporate fine-grained detail or tacit knowledge. In contrast, because near-failure experience produces learning both in external observers and in the surviving organization itself, it is more likely to preserve both tacit and discursive knowledge.

Third, learning from firms that were on the brink of failure but did in the end fail may allow observers to benefit not only from the rich description of the symptoms and the causes of failure but also from a proven solution. Finally, managers of failed firms may withhold the information on why they failed to protect their remaining stakes or to save face (Eisenhardt, 1989a; Barney & Hesterley, 1996). While near-failure may be seen as a positive event to which managers can point with pride in public forums, failure may be seen as a negative event to be discussed only among close associates.

An alternative view arises from theories that emphasize interpretation and psychological processes in knowledge transfer. The literature on impression management suggests that firms occasionally try to hide or deny any poor performance in order to create an impression of their ongoing robust health (Staw, McKechnie, & Puffer, 1983; Elsbach & Kramer, 1996). A firm's effort to mask its near-failure experience or crisis may prevent the experience from being transmitted to other firms or may produce less accurate views of the causal situation (Morris, Moore, Tamuz, & Tarrell, 1998).

Some evidence suggests that one of the most crucial factors in whether another firm's outcomes will be noticed is the scale or intensity of the outcome. That is, firms are more likely to imitate or copy salient outcomes (March & Olsen, 1976; Haunschild & Miner, 1997). Because failure is usually more visible than near-failure, it is more likely to be observed by other firms than near-failure and is consequently more likely to generate interorganizational learning. Finally, failure has some advantages from the learning perspective because it is relatively unambiguous and very public.

In summary, theories emphasizing the importance of information availability and quality tend to predict that near-failure experience will produce a greater survival-enhancing learning effect than failure experience. On the other hand, theories that stress limited attention or the importance of visibility tend to suggest that failure experience will be a better source of survival-enhancing learning. Thus, the question of which type of experience (either failure or near-failure experience) will generate a stronger survival-enhancing learning depends on the conditions under which learning is taking place.

I argue that, in the *intrapopulation learning*, the potential value of rich information of near-failure experience is likely to surpass the effect of the higher visibility of failure experience because (1) there are several mechanisms that ensure information flow among firms within an industry such as industry associations and regulators and (2) a firm generally allocates a higher portion of their monitoring efforts to firms in the same industry. In contrast, in the *interpopulation learning*, the effect of visibility may be a more critical determinant of the learning effectiveness because the potential value of rich information of near-failure experience may not be easily transferred across the industry boundaries. There arguments lead to the following set of propositions.

Hypothesis 3a: *When learning occurs within an industry, the survival-enhancing effect of learning from the industry near-failure experience will be greater than the survival-enhancing effect of learning from the industry failure experience.*

Hypothesis 3b: *When learning occurs across industries, the survival-enhancing effect of learning from the industry near-failure experience will be weaker than the survival-enhancing effect of learning from the industry failure experience.*

2.4 Competitive Dynamics and Learning from Failure and Near-Failure Experience

2.4.1 Survival-Enhancing Learning from Local and Nonlocal Experience

Organizational learning has been argued to be a source of sustainable competitive advantage through improved efficiency (Yelle, 1979; Epple et al., 1991), acquisition of new knowledge and skills (Cohen & Levinthal, 1990) or better understanding of the environment. However, achieving higher efficiency does not necessarily guarantee higher competitiveness. Researchers have argued that learning could incapacitate a firm by leading it into an competency trap, where it focuses on improving successful routines while ignoring emerging realities in its environment (March, 1991; Levinthal & March, 1993).

Even a firm's learning that does not lead it into competency trap may not enhance its competitiveness as its competitors learn simultaneously in the web of competition (Mezias & Lant, 1994). A firm facing competition attempts to learn ways to improve its competitiveness, which in turn triggers learning in its competitors – again triggering learning in the first firm. Drawing on models of biological evolution, Barnett and Hansen (1996) defined such a reciprocal, self-reinforcing process of learning as the "Red Queen" effect. Researchers in the economics tradition have also argued that knowledge external to a firm and shared with competitors cannot serve as a sustainable source of competitive advantage (Barney, 1986). Resource-based theory also suggests that common capabilities are sources of competitive parity rather than sources of competitive advantage (Levinthal, 1994).

Taken together, these arguments imply what is learned from direct competitors may not enhance a firm's survival prospect although it may be helpful in improving operational efficiency of the firm. For instance, Lawless and Anderson (1996) found that the amount of a firm's experience in a specific technological niche has a negative relationship with its performance, implying that too much learning within a niche may have a negative impact on a firm's performance. Such learning might even lower the survival prospect of a population of competing firms by leading them into "collective" competency traps and making them vulnerable to competition from an emerging population (March, 1991; Miller, 1993).

In contrast, firms may benefit from learning by observing failure and near-failure experience of non-direct competitors. The uncertainty introduced by differences in markets, customers and suppliers may complicate the learning process and limit the applicability of such learning (March et al., 1991), but the benefits may outweigh the costs as they can learn knowledge and information that may not be readily available to their direct competitors and such unique knowledge and information may serve as a source of sustainable competitive advantage (Cohen & Levinthal, 1990; March, 1991). When a firm learns from non-direct competitors, it is more likely to explore heterogeneous knowledge than it does by learning from direct competitors in the same market. Because direct competitors in the same market often become homogeneous over time by imitating each other, learning among them may not provide heterogeneous knowledge that can help a firm to avoid falling into a competency trap (March, 1991). These arguments lead to the following hypotheses:

Hypotheses 4a: *Learning from failure experience of firm in the same industry outside a focal firm's local market will be more likely to enhance its survival prospect than learning from failure experience of local competitors.*

Hypotheses 4b: *Learning from near-failure experience of firms in the same industry outside a focal firm's local market will be more likely to enhance its survival prospect than learning from near-failure experience of local competitors.*

Based on the arguments described above, a set of hypotheses is also proposed for learning from firms in a competing population:

Hypotheses 4c: *Learning from failure experience of firm in a competing industry outside a focal firm's local market will be more likely to enhance its survival prospect than learning from failure experience of local competitors.*

Hypotheses 4d: *Learning from near-failure experience of firms in a competing industry outside a focal firm's local market will be more likely to enhance its survival prospect than learning from near-failure experience of local competitors.*

2.4.2 Alternative View

Hypotheses 4a to 4d are built on an implicit assumption that some banks possess an ability to identify and learn strategies and practices that are beneficial in the target market. Theories of interorganizational learning and neoinstitutional theory imply that firms may not be able to learn properly from nonlocal firms.

Firms mainly set local or proximate firms as a learning target (Cyert & March, 1963; Levitt & March, 1988). In their recent empirical study, Stuart and Podolny (1996) examined the localness of search by investigating the relative distance that a firm travels in technology space over time and found a surprisingly stable technological position over time. Neoinstitutional theory also suggests that firms are more likely to imitate practices and routines of other firms that are proximate to them in key organizational dimensions (DiMaggio & Powell, 1983; Scott, 1991). There is considerable empirical evidence that supports this claim. Fligstein (1991) studied the 100 largest U.S. firms and found evidence that firms adopt diversification strategy when other firms in the same field adopt the strategy. Similar results were reported by Haveman (1993), Burns and Wholey (1993), and Haunschild and Miner (1997).

These results are often attributed to the limited attention capacity of organizations under uncertainty. Because making a strategic decision in the dynamic environment involves a high degree of uncertainty and managers cannot evaluate all possible alternatives in making a decision, they frequently learn and imitate strategic decisions of proximate firms to minimize the uncertainty (Mezias & Lant, 1994). This unevenly distributed attention of managers implies that firm are more likely to learn and *un*learn from proximate firms, and that learning from nonlocal, non-direct competitors may not always occur without a mechanisms that enables or stimulates them to engage in learning from non-direct competitors or firms outside their market boundaries.

Managers often define competitive boundaries by identifying core identity and causal beliefs and make sense of interactions within those boundaries. These beliefs are reinforced by a mutual enactment process among firms in the same boundary (e.g., same geographic area) and constrain the flow of information within the boundary (Porac, Wade, & Pollock, 1999). In their study of the Scottish knitwear industry, Porac and his colleagues found that the mental models and strategic decision of managers determine the industry boundary and information flows (Porac, Thomas, & Baden-Fuller, 1989). This cognitive limitation of managers may lead them to set their learning targets primarily to firms within their mental boundaries of competition, preventing interpopulation learning from occurring.

Finally, lessons learned from nonlocal experience may have limited value, as the usefulness of such lessons is contingent on the customers and competitors in the focal market (Ito, 1997). If banks cannot effectively select and transfer strategies and routines that could help them in the target market, the nonlocal experience might adversely affect their performance (Ingram & Baum, 1997a). Greve (1999) studied the U.S. radio-broadcasting branch system and provided a supporting evidence that experience in other markets has a negative effect on performance.

Even when lessons a firm learned from nonlocal experience have certain value in the market to which the firm operates, implementing such lessons may be more difficult than implementing local lessons. Managerial complexity increases as managers' information processing requirements increase. Thus, the complexity involved in lessons learned from experience of nonlocal competitors and resulting difficulties in observing, interpreting and applying such lessons may impede effective and efficient implementation of such lessons (Tushman & Nadler, 1978; Sanders & Carpenter, 1998). These arguments lead to a set of alternative propositions.

Hypotheses 4a (Alternative): *Learning from failure experience of firms in the same industry outside a focal firm's local market will be less likely to enhance its survival prospect than learning from failure experience of local competitors.*

Hypotheses 4b (Alternative): *Learning from near-failure experience of firms in the same industry outside a focal firm's market will be less likely to enhance its survival prospect than learning from failures of local competitors.*

A set of hypotheses is also proposed for learning from firms in a competing population:

Hypotheses 4c (Alternative): *Learning from failure experience of firm in a competing industry outside a focal firm's local market will be less likely to enhance its survival prospect than learning from failure experience of local competitors.*

Hypotheses 4d (Alternative): *Learning from near-failure experience of firms in a competing industry outside a focal firm's local market will be less likely to enhance its survival prospect than learning from near-failure experience of local competitors.*

CHAPTER 3

METHODS

My thesis combines exploratory investigative work with the quantitative hypotheses testing. Both qualitative and quantitative research methods including interviews, surveys and statistical analyses were used to derive theories and test formal hypotheses in the context of the U.S. commercial banking industry. Three separate but interdependent research stages were designed. At the first stage, I interviewed industry experts and field managers to create theories, confirm assumptions built into the empirical models, and construct measures. At the second stage, I surveyed 130 commercial bank managers to inquire industry-specific boundary conditions. At the final stage, empirical models were constructed and statistical analyses were performed to test hypotheses.

3.1 Research Setting

3.1.1 Exploratory Investigation

Although statistical analyses with a comprehensive industry data set allow testing formal hypotheses and provide an opportunity to generalize the findings, they are often incapable of reflecting fine-grained tacit or discursive processes. The empirical models in this study seek for a causal relationship between sources of learning (i.e., industry failure and near-failure experience) and outcomes of learning (i.e., reduced risk of failure). But it does not identify the intermediate processes that produce the relationship and other boundary conditions. Continuous, iterative exploratory inductive work was conducted, and a specific goal of this phase is to refine and systematize the theories of the distinct processes generating interorganizational learning *processes* compared to factors that affect the *value* or *outcome* of learning.

Data collection, organization, and analyses were based on standard methods in inductive theory development (Ragin, 1987; Eisenhardt, 1989b; Denzin & Lincoln, 1995; Strauss & Corbin, 1998). These techniques include development of semi-structured interview protocols, open-ended interviewing, preliminary and constant interaction with industry experts and financial specialists, and inductive surveys.

Interviews. Theories, hypotheses, and measures in my dissertation have been built on qualitative interviews with industry experts and field managers as well as existing literature. I have conducted a number of both formal and informal interviews with industry experts, bank mangers, and financial analysts throughout my dissertation research.

I also conducted 40-45 minutes semi-structured interviews with 3 groups of bankers (each group consists of 4-6 bankers) who participated in the Banking Administration Institution (BAI) conference that was held at the University of Wisconsin-Madison in August 1999. All interview participants were members of BAI and were medium to high-level managers of U.S. based commercial banks. The size of banks that the participants were working for varied from a small regional bank to a large multinational bank. Each interview was recorded, transcribed and analyzed. Sample interview questions are shown in APPENDIX 1.

In each interview, I asked open-ended questions designed to explore whether informants (1) were aware of failures of other financial institutions, (2) deliberately engaged in such activities as avoiding actions of failed institutions or deriving "theories" about such failures, and (3) actively shared their own inferences with others. I also seek to validate the assumptions embedded in my empirical models by asking industry-specific environmental variables and boundary conditions (e.g., Is competition mainly local or nonlocal in the U.S. commercial banking industry?).

Survey. At the second stage, I surveyed 130 bankers participated in the Graduate School of Banking (GSB) that was held at the University of Wisconsin-Madison in 1999. Among the 130 bankers surveyed, 65 bankers responded with a completed survey (response rate of 50%). The survey instrument used in the survey is shown in APPENDIX 2.

In this part of my dissertation research, I focused on probing (1) the potential existence and types of vicarious organizational learning from others' failure and (2) the potential existence of processes that involve the creation of shared assumptions, models or coordination mechanisms that function more at the population level itself, as may occur through the actions of regulators.

The results of these interviews and survey provided fine-grained process information on interorganizational learning processes in the U.S. commercial banking industry, which was used for triangulation with the quantitative modeling part of my dissertation. First, the results provided deeper understanding of mechanisms of learning from failure. Second, they helped me to incorporate the industry-specific boundary conditions into the theories and empirical models. In a sense, they were used as a tool for bridging my theoretical claims and the realities in the U.S. commercial banking industry. Third, they informed the interpretation of the quantitative results of formal theory testing, and helped my interpretation of unexpected empirical results.

3.1.2 Theory Testing

Sample. The sample used in this study consists of all of the Federal Deposit Insurance Corporation (FDIC) insured U.S. commercial banks chartered over 15-year period between 1/1/1984 and 12/31/1998. During the period, 2,724 commercial banks were chartered. Among the 2,724 commercial banks, 28 banks were dropped from the sample because of incomplete information. Thus, the final sample contained quarterly data on 2,696 commercial banks over 15-year period between 1984 and 1998, which constitutes 71,224 spells or organization-quarters.

Among the 2,696 banks, 259 banks failed and 905 banks were merged with another banks without FDIC financial assistance and the remaining 1,560 banks were still active at the end of 1998. FIGURE 2 illustrates the number of new charters, failures and mergers of commercial banks chartered between 1984 and 1998 by year. Because the majority of commercial banks are insured by the FDIC, this sample closely represents all the commercial banks chartered since 1984[2]. Although data was collected for all U.S. commercial banks in existence during the study period (a total of 18,379 banks), a cohort study design was selected to avoid potential specification biases that may be caused by using a left-truncated data (Guo, 1993). Although a cohort study design was used, information on all U.S. commercial banks in existence during the study period was used to construct some

[2] As of October 1, 1998, 9,103 out of all 9,282 U.S. commercial and savings banks were insured by the FDIC.

key independent variables (e.g., the industry failure and near-failure experience variables) because banks in the sample can learn from banks that are not in the sample (i.e., chartered before 1984) as well as from other banks in the sample.

Because this study explores issues on interpopulation competition and learning, one of the two major competing populations of commercial banks – the S&L population – was included in the analyses, and key financial and demographic data on all S&Ls in existence during the study period were collected. Basic information on credit unions (e.g., density) was also collected and included in the analyses to control for potential effects that may arise from the competitive interaction between commercial banks and credit unions. The changes in the number of banks, S&Ls, and credit unions during the study period are shown in FIGURE 3.

The U.S. commercial banking sector offers an excellent opportunity for investigating hypotheses developed in the present study. First, my qualitative work suggested that there are several mechanisms that ensure interorganizational learning from failure in this setting. For example, federal and state regulators play a critical role in transmitting new information and knowledge across banks. When a bank fails or is at risk of failure, they analyze the incident and broadcast the information to other banks in order to prevent further failure in the industry. Regulators and consultants of the FDIC are also effective mediators of transmitting information across different financial sectors such as S&Ls and credit unions, assisting interpopulation learning. Various affinity groups, which are groups of representatives of banks that share the same interest, and banking associations are also important source of sharing and exchanging information and knowledge. The presence of these well-established information transmission and communication networks is an attractive feature of the commercial banking industry. Thus, it is plausible to assume that interorganizational learning from failure occurs in this industry, making it a reasonable place to begin formal research on this topic.

Second, the U.S. commercial banks are a relatively homogeneous group and their basic operations do not have much variation. This homogeneity eliminates many exogenous factors that may cause a model specification bias and reduces the danger of population heterogeneity. Finally, various financial ratios and ratings provide an objective and comprehensive measure of near-failure experience.

This setting offers a rich context to explore the hypotheses in my dissertation in part because of the period saw many major changes in the regulatory and competitive environments that altered exogenous contexts of banks as well as competing populations (i.e., credit unions and S&Ls). The distinguishing feature of the history of banking in the 1980s and early 1990s was the extraordinary upsurge in the number of bank failures. During the period, the industry witnessed 1,617 bank failures - far more than any other period since the advent of FDIC in 1933. The rise in number of bank failure forced both banks and regulators to direct more attention to analyzing the failures and implementing strategies to prevent further failure, making my arguments on learning from failure experience more plausible.

The high number of bank failures in this period resulted from a concurrence of various forces including technological progress, economic change, and regulatory change. In response to these new competitive dynamics, a series of regulatory changes were implemented in the early 1980s. For example, *The Depository Institutions Deregulation and Monetary Control Act of 1980* phased out deposit interest-rate ceilings, and the *Garn-St Germain Depository Institutions Act of 1982* set the stage for a rapid expansion of lending. In 1982, the *National Credit Union Administration* extended the "common bond" membership requirement for credit unions so far as to become virtually meaningless in many cases. The most notable consequence of these acts was the increased competition between banks and thrifts. Hannan (1984) compared different types of financial service organizations and found that thrifts and credit unions are not equal competitors of banks. However, the situation has drastically changed throughout the 1980s. A financial industry expert asserted "credit unions themselves are nothing more than maturing financial institutions such as banks (Wilson, 1998)." The increased competition among banks, S&Ls, and credit unions[3] provides a desirable setting to investigate interpopulation competition and learning (Amburgey, Dacin, & Kelly, 1994).

One of the executives I interviewed claimed "the meaning of competition in the U.S. commercial banking industry has fundamentally changed since the mid-1980s." As Haveman (1993) noted, the series of regulatory acts and the changes in meaning of competition created a discontinuity in the environment of the U.S. commercial banking industry, which can be treated as a quasi-experiment (Cook & Campbell, 1979). Because all industry participants may begin their transformation at the same time under such circumstance, it is possible to control many extraneous factors.

[3] In June 1996, commercial banks, S&Ls, and credit unions held 53.9%, 18.4% and 8.4% of consumer savings respectively.

Data Source. The primary financial and demographic data used in this study was obtained from *IDC Financial Publishing, Inc. (IDC)*, a leading Wisconsin-based publisher of financial data and information on all banks, bank-holding companies, thrifts, and credit unions reporting to the federal government. IDC provided quarterly financial and managerial data on banks and S&Ls, and semiannual data on credit unions.

The *FDIC website* was used to obtain historical statistics and some demographic information on banks and thrifts. *The Bankers Directory Series* (Rand McNally, 1984-1990; Thompson Financial Publishing, 1991-1998) was used to collect additional data (e.g., data before 1984). Some supplementary data on credit unions was acquired from the Center for Credit Union Research (CCUR), an independent academic research center located at the School of Business of University of Wisconsin-Madison.

3.2 Measures

3.2.1 Dependent Variable

The dependent variable is the *unobserved hazard rate for bank failure* in the population of commercial banks. This represents a potential measure of a special type of learning outcome rather than learning process. Because learning may or may not provide value, *defining* learning by any fixed outcome (i.e., survival rates) may lead to an incorrect representation of learning (Miner & Mezias, 1996). One of the theoretical constructs of survival-enhancing learning represents a special case of potential learning outcomes. It can be investigated through making predictions about when it will occur and examining whether they are supported using appropriate control variables.

A bank is considered to be a failure when (1) it was merged or liquidated at a loss, (2) it was merged or liquidated involuntarily, or (3) it was merged with financial assistance from FDIC. However, mergers do not always represent a failure. Like firms in other industries, banks often acquire or merge with another bank for strategic reasons (e.g., market expansion, economies of scale, etc.). During the study period (1984-1998), the commercial banking industry witnessed a substantial industry consolidation as the number of banks had decreased by over 40%. Thus, mergers and acquisitions not associated with a bank failure will be treated as a competing risk in the analysis (Kalbfleisch & Prentice, 1980). Each merger and acquisition will be individually analyzed and categorized into either a failure or a non-failure merger or acquisition. FDIC annual reports[4] along with financial information and bank ratings at the time of the merger and acquisition will be used to determine the status.

3.2.2 Industry Failure Experience Since Entry

Two sets of industry failure experience variables were constructed for (1) the industry experience from commercial bank failures (CB Industry Failure Experience) and (2) the industry failure experience from S&L failures (S&L Industry Failure Experience).

Literature on organizational learning implies learning from prior experience may not increase linearly with the amount of experience because older experience becomes less useful as the environment evolves and may eventually become obsolete (Darr et al., 1995;

[4] The FDIC generally differentiates failure-related mergers and acquisitions from non-failure-related mergers and acquisitions in its annual reports.

Ingram & Baum, 1997b; Baum & Ingram, 1998). In previous empirical studies, various techniques and assumptions have been used to distinguish recent organizational experience from outdated experience. Most notably, discontinuous and continuous discounting methods of past experience were used to estimate the depreciation of past experience. Barnett and Hansen (1996) used 10 years as a cutoff point between recent and distant competitive experience of Illinois regional banks, and Greve (1999) defined experience since 1982 as "recent" in the radio broadcasting industry and used various discount factors to account for temporal decay. In contrast, Ingram and Baum used a continuous approach to measure the depreciation of the past experience of Manhattan hotels (Ingram & Baum, 1997b; Ingram & Baum, 1997a; Baum & Ingram, 1998).

In this thesis, both discontinuous and continuous depreciation approaches were explored because (1) there is no empirical evidence that either of the two approaches can estimate the depreciation of past experience better than the other, (2) investigating different assumptions embedded in each approach may provide an opportunity to deepen our understanding of antiquation process of old knowledge and experience, and (3) the robustness of the empirical models and the sensitivity of measures can be tested by exploring different specifications of knowledge depreciation.

Additionally, a hybrid approach between the discontinuous and continuous approaches was introduced because my exploratory work suggests that the temporal decay of industry failure experience may be a function of a continuous depreciation of past experience and discontinuous environmental changes. Even relatively recent experience may not produce survival-enhancing learning when radical environmental shifts such as regulatory changes occur because firm behaviors and the consequences of such behaviors are likely to change (Barnett et al., 1994). For example, failure experience that is 10 years old may produce survival-enhancing learning if there has been no major environmental change during the period while 3-year-old failure experience may not produce survival-enhancing learning if there was a major environmental change during the 3 years.

The industry failure experience since entry for firm i at time t was operationalized by using one of the following four approaches: (1) No depreciation approach, (2) Discontinuous depreciation approach, (3) Continuous depreciation approach, and (4) hybrid approach. The functional forms used for each approach are described below. Because there may be some lag before failure experience to accrue, this experience variable was lagged by 1 year *(t-1)*.

Although the main sample of my thesis consists of only banks chartered since 1984, all financial institutions (i.e., commercial banks and S&Ls) in existence during the study period were considered in measuring the industry failure experience variables because banks in the sample can learn from the failure experience of banks that are not in the sample (i.e., banks chartered before 1984).

No Depreciation Approach. The CB Industry Failure Experience since entry for a bank *i* at time *t* was defined as the simple sum of the number of commercial bank failures since the founding of the bank[5]. This assumes the usefulness of knowledge and experience learned in the past does not depreciate over time.

[5] S&L Industry Failure Experience since entry for a bank *i* at time *t* was similarly defined as the simple sum of the number of S&L failures since the founding of the bank. In the rest of the Measure Section, I do not define and explain S&L industry experience variables separately because their operationalization and functional forms are identical to those used to create commercial bank industry experience variables. Please refer to TABLE 1 for more details.

$$= \sum_{t_F}^{t-1} Total\ Number\ of\ Failure_t$$

where t_F is the year when firm *i* was founded, ***Total number of failure****$_t$* represents the total number of failures at the current year *t*.

Discontinuous Depreciation Approach. The CB Industry Failure Experience was defined as the sum of the number of commercial bank failures since the latest major environmental change. This assumes that experience learned before the latest environmental change does not produce survival-enhancing learning and the value of experience learned after the latest environmental change does not depreciate.

$$= \sum_{t_{RL}}^{t-1} Total\ Number\ of\ Failure_t$$

where t_{RL} represents the latest major regulatory change, ***Total number of failure****$_t$* represents the total number of failures at the current year *t*.

Continuous Depreciation Approach. The CB Industry Failure Experience was defined as the discounted sum of all commercial bank failures since its founding. I created 3 different variables using different discount factors that specify different depreciation rates of previous knowledge: (1) the age of the failure experience; (2) the age^2 of the failure experience; and (3) the $\sqrt{age}$ of the failure experience. Among these three specifications, the age[2] discount assumes an accelerating (fastest) depreciation of knowledge and experience learned in the past while the $\sqrt{age}$ discount assumes a decelerating (slowest) depreciation of prior knowledge and experience. This approach also assumes that distant experience can also be a source of survival-enhancing learning.

$$= \sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Failure_t}{Discount\ Factor}$$

where t_F is the year when firm *i* was founded, *Total number of failure*$_t$ represents the total number of failures at the current year *t*, and *Discount Factor* represents a discount factor that depreciates values of *Total number of failure*$_t$ by (1) the age, (2) the age^2, and (3) the $\sqrt{age}$ of each failure experience.

Hybrid Depreciation Approach. The CB Industry Failure Experience was defined as the sum of (1) the aggregated number of commercial bank failures since the latest major environmental change and (2) the discounted sum of all commercial bank failures between its founding and the latest major environmental change.

This operationalization is based on an assumption that knowledge gained from industry failure experiences since the most recent major environmental change does not depreciate while learning before the environmental change depreciates with time.

$$= \sum_{t_F}^{t_{RL}-1} \frac{\mathit{Total\ Number\ of\ Failure}_t}{\mathit{Age}} + \sum_{t_{RL}}^{t-1} \mathit{Total\ Number\ of\ Failure}_t$$

where t_F is the year when firm i was founded, *Total number of failure*$_t$ represents the total number of failures at the current year t, t_{RL} represents the latest major regulatory change, and *Age* represents a discount factor that depreciates values of *Total number of failure*$_t$ by the age of each failure experience.

The Proxy of Environmental Changes. Among the four different depreciation approaches, the discontinuous depreciation and the hybrid depreciation approach use the latest environmental change as a cut-off point of recent and distant experience. In my dissertation, major regulatory changes will be used as a proxy of major environmental changes because legislation represents the most important environmental change during the study period as it played a large role in the bank-failure experience of the 1980s and 1990s (Curry, 1997; Davison, 1997).

The study period witnessed a number of regulatory changes and legislation. The interviews with industry experts and bankers helped me to identify four major regulatory changes that most significantly influenced the U.S. commercial banking industry during the study period: (1) the *Competitive Equality Banking Act of 1987 (CEBA)*; (2) The *Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA)*, (3) the *Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA)*; and (4) the *Riegle-Neal Interstate Banking and Branching Efficiency Act (Riegle-Neal)* and the *Riegle Community Development and Regulatory Improvement Act (the CDRI Act) of 1994*. These four regulatory changes were used to represent major environmental changes. APPENDIX 3 summarizes the contents of each regulatory change.

3.2.3 Industry Near-Failure Experience Since Entry

Two sets of industry near-failure experience variables were constructed for (1) the industry experience from commercial bank near-failures (CB Industry Near-Failure Experience) and (2) the industry experience from S&L near-failures (S&L Industry Near-Failure Experience).

Near-failure experience is defined by the experience of a bank that was on the brink of failure followed by a recovery, and was measured by using CAMEL ratings[6]. The CAMEL rating is a composite index of various measures of the level of financial and

6 Each Component of the CAMEL rating are as follows:

Capital Risk. Capital risk is determined by Tier I capital as a percent of assets and as a percent of risk-based asset. Tier I and II capital as a percent of risk-based assets (risk-based capital ratio) measures credit and interest rate risk as well as estimates risks in the asset base.

Asset Quality. Asset quality is measured by the levels of loan delinquency and non-performing assets relative to loan loss reserves and capital ratios. Risk-adjusted assets as part of the risk-based capital ratio further define the quality of assets.

Margins. Margins are the best measurement of management's financial controls. Margins represent the spreads between (1) operating expense and net operating revenues, (2) after-tax return on earning assets and cost of funding, and (3) the return on equity compared to estimated cost of equity capital.

Earning Returns. Earning returns measure the success of the bank's operating strategy. Ratios of revenue yields from investments, loans, and noninterest income with comparison to operating costs, loan loss provision, and net nonoperating income ratios are the major components of the net operating after-tax return on earning assets (ROEA).

Leverage Returns. Leverage returns measure the efficiency of the bank's financial strategy. Liquidity, the other "L" in CAMEL, measures the ability to change leverage. Operating assets are financed with the leverage of deposits and borrowings to Tier I capital and its comparative cost. The leverage multiplier illustrates the degree of leverage while the leverage spread measures its cost relative to operation returns. Liquidity, the other "L" in CAMEL, measures the ability to change leverage.

management soundness of a financial institution (Capital risk, Asset quality, Margins, Earning returns, and Leverage returns). Both IDC and FDIC calculate their own CAMEL ratings independently. The CAMEL ratings calculated by IDC were used in my dissertation instead of the CAMEL ratings calculated by the FDIC because (1) the CAMEL ratings calculated by the FDIC is available only to the regulators but not to the public, (2) the IDC CAMEL ratings are more fine-grained and incorporate more sophisticated financial information than the FDIC CAMEL ratings, and (3) IDC's ratings also reflect managerial aspects as well as financial aspects of each institution.

The IDC CAMEL ratings range from 1 (the lowest) to 300 (the highest)[7], and ratings between 125 and 164 are considered to be an average and a bank whose rating is below 125 is considered to be under financial strain and at risk of failure. Institutions rated below average (0-125) are characterized by (1) high average loan delinquency, (2) excess non-performing assets, and (3) negligible financial leverage due to narrow leverage spreads.

Thus, near-failure experience is defined when a bank received a below-average CAMEL rating (i.e., 0-125) for at least 2 consecutive quarters and then recovered from its low rating status (i.e., 0-125). This measure has the interesting advantage of representing a single metric on which each bank can be placed clearly, and which has a quasi-objective basis.

[7] IDC CAMEL ratings are classified as follows:

- Superior (200-300)
- Excellent (165-199)
- Average (125-164)
- Below Average (75-124): **Risk of Failure**
- Lowest Ratios (2-74): **High risk of Failure**
- Rank of One (1): **Highest probability of failure**

The learning value of near-failure experience acquired in the past may also depreciate over time. I operationalized ***the industry near-failure experience since entry for bank i at time t*** using the same depreciation methods used to construct the industry failure experience since entry.

No Depreciation Approach. The CB Industry Near-Failure Experience since entry for a bank i at time t was defined as the simple sum of the number of commercial bank near-failures since the founding of the bank.

$$= \sum_{t_F}^{t-1} Total\ Number\ of\ Near\text{–}Failure_t$$

where t_F is the year when firm i was founded, *Total number of near-failure*$_t$ represents the total number of near-failures at the current year t.

Discontinuous Depreciation Approach. The CB Industry Near-Failure Experience was defined as the sum of the number of commercial bank near-failures since the latest major environmental change.

$$= \sum_{t_{RL}}^{t-1} Total\ Number\ of\ Near\text{–}Failure_t$$

where t_{RL} represents the latest major regulatory change, *Total number of near-failure*$_t$ represents the total number of near-failures at the current year t.

Continuous Depreciation Approach. The CB Industry Near-Failure Experience was defined as the discounted sum of all commercial bank near-failures since its founding.

$$= \sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Near\text{–}Failure_t}{Discount\ Factor}$$

where t_F is the year when firm *i* was founded, *Total number of near-failure$_t$* represents the total number of near-failures at the current year *t*, and *Discount Factor* represents a discount factor that depreciates values of *Total number of failure$_t$* by (1) the age, (2) the age^2, and (3) the $\sqrt{age}$ of each near-failure experience.

Hybrid Depreciation Approach. The CB Industry Near-Failure Experience was defined as the sum of (1) the aggregated number of commercial bank near-failures since the latest major environmental change and (2) the discounted sum of all commercial bank near-failures between its founding and the latest major environmental change.

$$= \sum_{t_F}^{t_{RL}-1} \frac{Total\ Number\ of\ Near-Failure_t}{Age} + \sum_{t_{RL}}^{t-1} Total\ Number\ of\ Near\text{–}Failure_t$$

where t_F is the year when firm *i* was founded, *Total number of near-failure$_t$* represents the total number of near-failures at the current year *t*, t_{RL} represents the latest major regulatory change, and *Age* represents a discount factor that depreciates values of *Total number of near-failure$_t$* by the age of each near-failure experience.

3.2.4 Local and Nonlocal Market Failure and Near-Failure Experience Since Entry

Four sets of variables that measure local market experience (CB Local Failure Experience, CB Local Near-Failure Experience, S&L Local Failure Experience, and S&L Bank Local Near-Failure Experience) and four sets of variables that measure nonlocal market experience (CB Nonlocal Failure Experience, CB Nonlocal Near-Failure Experience, S&L Nonlocal Failure Experience, and S&L Nonlocal Near-Failure Experience) were developed to test the Hypothesis 4a to 4d (and Alternative Hypothesis 4a to 4d).

There are many ways to determine the "localness" of a market. Geographic regions such as cities or states were most frequently used in the previous studies. In my thesis, the localness was determined by the 8 FDIC regions[8]: Failures occurred in the same FDIC region in which a focal bank is located were defined as "local" failure experience while failures occurred outside the FDIC region in which a focal bank is located were defined as "nonlocal" failure experience.

Using the FDIC region to determine "localness" has several advantages over using a strictly geographic definition such as states. First, the FDIC regions are grouped based on

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[8] The 8 FDIC regions are separated as follows:

Region 1: Connecticut, Main, Massachusetts, New Hampshire, Rhode Island, Vermont
Region 2: Delaware, Washington DC, Maryland, New York, New Jersey, Pennsylvania, Puerto Rico, Virgin Islands
Region 3: Alabama, Florida, Georgia, North Carolina, South Carolina, Virginia, West Virginia
Region 4: Mississippi, Tennessee, Louisiana, Kentucky, Arkansas
Region 5: Ohio, Wisconsin, Michigan, Illinois, Indiana
Region 6: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
Region 7: Colorado, New Mexico, Oklahoma, Texas
Region 8: Alaska, Arizona, California, Guam, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming

geographic proximity, the number of institutions, industry structure, demographics and other factors. Thus, the FDIC regions are relatively objective and systematic way to separate markets. Second, each FDIC region is governed by a single regional office that performs various independent tasks. As a result, commercial banks in an FDIC region often develop routines and practices that are unique to the region, making them more homogeneous in terms of practices and routines. This, on the other hand, increases the heterogeneity across different FDIC regions.

Third, although interviews with industry experts and field managers informed me that competition in the U.S. commercial banking industry is mainly local, setting the boundary of competition of commercial banks is not always straightforward. While a small regional bank mainly compete with other banks that are in the same city or county, a national bank such as Chase Manhattan or Citibank virtually compete with all the banks in the U.S. Internet banking that emerged during the 1990s also contributed to blurring the market boundaries of commercial banks. The FDIC region broadly defines the local market and reasonably captures the competitive dynamics of commercial banks.

The local-nonlocal market experience variables were created by using 4 different discount specifications (No discount, Age discount, Age^2 discount, and Hybrid discount). Two of the six-discount specification used to create the industry failure and near-failure experience variables (i.e., $\sqrt{age}$ and Discontinuous discount specifications) were not reported in this study because they consistently performed poorly in the preliminary analyses.

TABLE 3-1 summarizes the definition and functional forms of all independent variables.

3.2.5 Control Variables for Alternative Arguments

One subset of control variables seek to rule out the alternative arguments for the effect of prior failure experience, including the effect of (a) increased resource availability, (b) competition from stronger competitors, and (c) the effects of regulations.

Increased Resource Availability. Failure of a subset of organizations in a population frees up resources for other organizations in the population, consequently increasing their life chances (Carroll & Delacroix, 1982). Failure of a bank mainly releases two kinds of resources to the market: (1) business resources such as customers and (2) managerial resources such as managers and employees.

The amount of total deposit of a failed bank at the time of its failure is a reasonable proxy of its total customers. CB Deposits Release was measured by the total deposit amount of failed commercial banks at the time of their failure aggregated by year, and included in the baseline model to control for the increased level of resources due to failure of banks.

Because many business areas of S&Ls overlap with those of commercial banks, resources released by S&L failures can be picked up by commercial banks. To account for resources released by failure of S&Ls, S&L Deposit Release, which was measured by the total amount of deposits of failed S&Ls aggregated by year, is included in the baseline model.

Employees and managers of failed banks also represent important resources, and can be absorbed by surviving banks, consequently increasing their survival chances. CB Employee Release, which was measured by the total number of employees of failed commercial banks at the time of their failure aggregated by year, was included in the baseline model to account for the increased availability of managerial resources due to the failures.

The interviews with industry experts and field managers suggested that business resources released by failed banks are more likely to be absorbed locally. Thus, these three variables were aggregated at the state level rather than at the national level.

Competition from Stronger Competitors. The reduced number of banks in a market does not necessarily imply weaker competition because the survived firms may be stronger competitors. Larger firms typically generate stronger competition than their smaller rivals as a result of their superior access to resources, greater market power, and economies of scale and scope (Barnett & Amburgey, 1990; Baum & Mezias, 1992). CB Mass Density, which was measured by the sum of the total assets of all commercial banks in a given year aggregated at the state level, was included to control for this potential effect. S&L Mass Density, which was measured by the sum of the amount of the total assets of all S&Ls in a given year aggregated at the state level, was also included in the baseline model to control for the potential competition from stronger S&Ls.

The Effects of Regulation. Government actions and regulatory changes in response to failures in an industry may affect subsequent failure rates. The stringency of regulatory review and oversight of regulatory agencies (e.g., FDIC or Federal Reserve) over banks may change due to the awareness of problems in the industry, consequently influencing the subsequent failure rates of banks. For example, the number of regulatory reviews and enforcements sharply increased during the mid-1980s in response to the S&L crisis. The increased level of regulatory stringency often results in the increased failure rates of banks because regulatory agencies more actively engage in closing low-performance banks. However, the increased level of regulatory stringency can also decrease failure rates of banks because regulatory agencies may provide extra support to banks at risk of failure. Two variables were included in the baseline model to account for the changing level of the strictness of regulatory agencies.

Regulation Interval, which was measured by the mean days between regulatory reviews and examinations for commercial banks by 3 major regulatory agencies (i.e., OCC, FDIC, FRS), represents how often regulatory reviews are performed for individual banks. FIGURE 4 illustrates the trend of regulatory examination intervals of 3 major regulatory agencies. The mean interval of regulatory reviews and examinations increased sharply during the mid-1980s and gradually increased in the late-1980s. Number of FDIC Enforcement was measured by the number of FDIC formal enforcement actions and represents how many formal regulatory actions were enforced by the FDIC in a given year.

3.2.6 Control Variables for Congenital Industry Experience

It has been argued that an organization's survival prospect is affected by the congenital experience of the industry at the time of its founding (Huber, 1991; Ingram & Baum, 1997b). The industry operating and failure experience at the time of founding of a bank were included in the model to control for the effects of congenital learning from the industry experience before its founding.

The Congenital Industry Failure Experience was measured by the (discounted) sum of the industry failure experience of all commercial banks between the foundation of the FDIC (1934) and the founding of a focal bank. For example, the congenital industry failure experience of a bank chartered in 1984 is the (discounted) sum of the total number of commercial bank failures between 1934 and 1983. Because the learning value of congenital failure experience may depreciate over time, the 6-discounting methods used to construct the industry failure and near-failure experience variables were also used to create this variable. Functional forms of each discount specification are as follows:

No Depreciation Approach. The Congenital Industry Failure Experience for a bank *i* was defined as the simple sum of the total number of commercial banks that failed between the year when FDIC was founded (1934) and a year before its founding.

$$= \sum_{t_{1934}}^{t_F - 1} Total\ Number\ of\ Failure_t$$

where t_F is the year when firm *i* was founded, t_{1934} is the year FDIC was founded (1934), $Total\ number\ of\ Failure_t$ represents the total number of failures at year *t*.

Discontinuous Depreciation Approach. The Congenital Industry Failure Experience for a bank *i* was defined as the sum of the total number of commercial banks that failed between a year before its founding and the last major environmental change that occurred before its founding.

$$= \sum_{t_{RL}/t_F}^{t_F - 1} Total\ Number\ of\ Failure_t$$

where t_F is the year when firm *i* was founded, t_{RL}/t_F represents the last major regulatory change that occurred before the founding of firm *i*, *Total number of failure$_t$* represents the total number of failures at year *t*.

Continuous Depreciation Approach. The Congenital Industry Failure Experience for bank *i* was defined as the discounted sum of all commercial banks failed between 1934 and a year before its founding.

$$= \sum_{t_{1934}}^{t_F - 1} \frac{Total\ Number\ of\ Failure_t}{Discount\ Factor}$$

where t_F is the year when firm *i* was founded, t_{1934} is the year FDIC was founded (1934), *Total number of failure$_t$* represents the total number of failures at year *t*, and *Discount Factor* represents a discount factor that depreciates values of *Total number of failure$_t$* by (1) the age, (2) the age^2, and (3) the $\sqrt{age}$ of each failure experience.

Hybrid Depreciation Approach. The Congenital Industry Failure Experience for a bank *i* was defined as the sum of (1) the aggregated number of commercial banks failed between 1934 and the last major environmental change that occurred before its founding, and (2) the discounted sum of the number of commercial banks failed between the last major environmental change that occurred before its founding and a year before its founding.

$$= \sum_{t_{1934}}^{t_{RL}/t_{RF}-1} \frac{Total\ Number\ of\ Failure_t}{Age} + \sum_{t_{RL}/t_{RF}}^{t_F-1} Total\ Number\ of\ Failure_t$$

where t_F is the year when firm i was founded, t_{1934} is the year FDIC was founded (1934), t_{RL}/t_F represents the last major regulatory change that occurred before the founding of firm i, *Total number of failure*$_t$ represents the total number of failures at year t, and *Age* represents a discount factor that depreciates values of *Total number of failure*$_t$ by the age of each failure experience.

The Congenital Industry Operation Experience was measured by the (discounted) sum of the total loans of all commercial banks since the foundation of FDIC. The total amount of loans was used to measure operating experience of banks because commercial and personal loans represent the most important portion of business for the majority of commercial banks and consequently represent the operating experience that is most crucial to a bank's performance. Because the learning value of congenital operating experience may also depreciate over time, the same 6-discounting methods used to construct the Congenital Industry Failure Experience were applied to create this variable.

3.2.7 Other Control Variables

Density of Commercial Banks. The modeling strategy includes the steps to control for the possibility that prior failure may increase resources, which would also enhance survival rates. Changes in competition should be also controlled directly. In models of organizational failure, competition is usually measured as a function of density, the number of organizations in the industry (Hannan & Carroll, 1992). Previous empirical studies on population density showed that density and failure have a U-shaped relationship. The initial decrease in failure rate is attributed to the increasing legitimacy of the population as it grows, and the later increase in failure is attributed to the increased competition (Hannan & Freeman, 1989; Hannan & Carroll, 1992). The density and the squared density of commercial banks (CB Density and CB $Density^2$) were included to control the competition effect. Because the competition between commercial banks remains mainly local, the density of banks was aggregated at the state level.

Density of Credit Unions. As credit unions have expanded their common bond membership and offer full-service banking, they have become major competitors for local community banks and S&Ls in many markets. This, on the other hand, means that credit unions are subject to competition from banks. Thus, the competition from credit unions should be controlled because stronger competition from credit unions is likely to decrease the survival prospect of banks. The density and the squared density of credit unions (CU Density and CU $Density^2$), aggregated at the state level, were included in the baseline model.

Density of S&Ls. The deregulation in the early 1980 substantially increased the competition between banks and S&Ls. The density and the squared density of S&Ls (S&L Density and S&L $Density^2$) aggregated at the state level were included in the baseline model to control the competitive effect of S&Ls.

Founding Conditions. Empirical studies in the population ecology tradition have shown that the environmental conditions at the time of founding have significant effects on the survival-prospect of newly founded organizations (Hannan & Freeman, 1989). Founding densities for all 3 competing populations in the U.S. consumer finance market (Founding CB Density, Founding S&L Density and Founding CU Density) were included in the baseline model to account for this potential effect.

Socio-Economic Conditions. The combination of macro economic and social environment affects failure rate of banks. For example, an economic recession is likely to negatively affect the survival chance of commercial banks. In order to control for the socio-economic environmental effects, two standard economic control variables, Unemployment Rate and Personal Income, were included in the baseline model. These variables were constructed at the state level because many banks operate locally and the state economy generally has a stronger impact on the survival of commercial banks than the nationwide economic condition.

The unemployment rate and the level of personal income are reasonable proxies of the general economic condition, but do not directly address the robustness of businesses and corporations. Dow Jones Industrial Index was added to the baseline model to account for the performance of businesses and corporations.

The level of interest rates is one of the most important factors that determines the profitability of financial institutions and is likely to influence the survival chances of commercial banks. Bank Prime Loan Rate was included in the baseline model to control for the effects of interest rate fluctuation.

Real Estate Market Condition. Literature on banking strongly suggests that the number one reason of bank failures during the 1980s and the early 1990s was the bad real estate lending caused by the severe recession in the real estate market (e.g., Texas). Many banks and thrifts moved aggressively into commercial real estate lending throughout the 1980s. The total real estate loans of banks were more than tripled, and commercial real estate loans were nearly quadrupled during the period. Over-building occurred in many markets, and when the bubble burst, real estate values collapsed, and the downturn was aggravated by the Tax Reform Act of 1986, which removed tax breaks for real estate investment and caused a reduction in after-tax returns on such investment. At many financial institutions loan quality deteriorated significantly, and the deterioration caused a large number of banks to fail (Hanc, 1997). Two variables were added to the models to control for the potential influence of the real estate market cycle and fluctuation during the study period.

NCREIF Index, which is frequently used to measure real estate market performance, was included to account for the performance of regional real estate market. The NCREIF (National Council of Real Investment Fiduciaries) Index is an index of the quarterly total returns to the commercial real estate properties held for tax-exempt institutional investors, and is intended to convey information relevant to quantifying the quarterly investment performance of the population of properties held by NCREIF members for institutional investors such as pension funds. The quarterly report of the NCREIF Index[9] for 4 regions (East, Midwest, South and West) was included in the model.

Number of Nonresidential Construction, which represents the total number of non-residential construction certificate, was also added to the baseline model to account for the level of business activities in the real estate market.

Firm-Level Control Variables. The primary purpose of these variables is to control for any heterogeneity of bank traits in the sample. Three variables that capture firm-specific characteristics were included in the baseline model. Federal Charter is a dummy variable that indicates whether a bank is state-chartered (coded 0) or federal-chartered (coded 1). Capital Asset Ratio is a financial ratio that is calculated by dividing the tier I equity capital with the average assets of a bank, and represents the level of capitalization of a bank. The preliminary analyses of various financial ratios have shown that the capital asset ratio of a bank had an almost perfect correlation coefficient (.998) with the return on asset ratio (ROA) of the bank, indicating that capital asset ratio also represents financial performance of a bank. Nonperforming Loans/Total Loan, which is measured by the amount of nonperforming loans as a percentage of total loans of a bank, represents the loan performance of a bank. Capital Asset Ratio and Nonperforming Loans/Total Loans not only control for firm-level heterogeneity but also controls for the financial soundness of each bank.

Age and Age^2. The effect of organizational aging on failure has been central to

[9] The value of the Index is set at 100 at the fourth quarter of 1977. Calculations are based on quarterly returns of individual properties before deduction of asset management fees, and each property's return is weighted by its market value.

ecological research. The liability of newness, the propensity of younger organizations to have higher mortality rates, has been the dominant view of age dependence, and received considerable empirical supports (Freeman, Carroll, & Hannan, 1983; Carroll & Hannan, 1989; Carroll & Wade, 1991; Hannan & Carroll, 1992). This phenomenon is usually attributed to the limited resources and lack of legitimacy of young organizations: Young organizations are more susceptible to failure because they must learn new social rules and gain legitimacy at a time when organizational resources are scarce. Although the liability of newness argument has been dominant in the ecological research, two alternative theoretical perspectives on age dependence emerged during the last decade. The liability of aging predicts that older organizations are more likely to fail because the alignment between an organization and its environment widens with age (Ingram, 1993; Barron, West, & Hannan, 1994). The Age of each individual bank was included to control for these effects of organizational aging on failure.

The other alternative argument, the liability of adolescence, predicts an inverted U-shaped relationship between age and failure (Bruderl & Schurssler, 1990; Fichman & Levinthal, 1991). This argument is based on an assumption that the risk of failure of an organization increases when it depletes its initial stock of resources and fail to generate necessary resources. Age^2 was included in the baseline model to control for this potential curvilinear effect of age dependence.

The Age and Age^2 variables were included in the constant rate exponential models but were not included in the piecewise exponential models because the piecewise exponential model uses the age in estimating age-dependencies in the empirical models.

The list of all control variables and the operationalization of each variable are shown in TABLE 3-2.

3.3 Analysis

The hazard rate of commercial banks was estimated using event history analysis. This method uses all the information provided by "right-censored" cases (those still surviving when observed) and avoids the biases that would be created with the use of logistic regression and similar methods on right-censored data (Allison, 1984; Tuma & Hannan, 1984). This feature is important in the present study to obtain unbiased failure rate estimates because approximately 58 percent of banks in the sample used in this study (1,560 banks out of the 2,696 total banks in the sample) were right-censored (i.e., active at the end of the study period (i.e., 1998)).

The instantaneous hazard rate of failure of banks is defined as follows:

$$r(t) = \lim_{\Delta t \to 0}\left(\frac{\Pr(t, t+\Delta t/t)}{\Delta t}\right) = \lim_{\Delta t \to 0}\left(\frac{\Pr(t, t+\Delta t)}{t} * \frac{1}{\Pr(t)}\right) = \frac{f(t)}{G(t)}$$

where $\Pr(t, t+\Delta t/t)$, the probability that a bank fails between time t and $t+\Delta t$, $f(t)$ is the density function and $G(t)$ is the survivor function. This shows that the instantaneous hazard rate is a conditional density function: the density function $f(t)$ divided through the survival function $G(t)$ (Blossfeld & Rohwer, 1995).

In my dissertation, two sets of statistical analyses were performed. The exponential transition rate model was used to estimate the failure rate of commercial banks in the first set of analyses. The exponential transition rate model was selected because no specific form of parametric assumption on age dependence was made in the empirical relationship between the industry failure experience and the failure rates of commercial banks. The effects of age dependence were controlled by including the age and age^2 of commercial banks in the baseline model. The hazard rate of bank *j* at time *t* is estimated as:

$$r_{jk}(t) = r_{jk} = \exp(\alpha_{jk0} + A_{jk1}\alpha_{jk} + \ldots) = \exp(A_{jk}\alpha_{jk})$$

where r_{jk} is the time-constant transition rate from original state *j* to destination state *k* and A_{jk} is a covariate. The exponential model assumes that the failure rate (or transition rate) $r_{jk}(t)$ from original state to destination state is time-constant (r_{jk}) (Tuma & Hannan, 1984; Blossfeld & Rohwer, 1995). The exponential models are estimated using the maximum-likelihood methods as implemented in the statistical software package Transition Data Analysis (TDA) (Rohwer, 1994; Blossfeld & Rohwer, 1995).

A second set of analyses that used a different model specification was performed to test the robustness of the results obtained from the exponential models. I used a piecewise exponential model that allows the failure rates to vary over predefined age periods (Tuma & Hannan, 1984; Blossfeld & Rohwer, 1995). The piecewise exponential model is appropriate in analyzing the data used in this study for several reasons. First, there is debate about the appropriate use of parametric models in estimating age dependence of organizational failure (Ingram & Baum, 1997a). The piecewise exponential model does not make strong parametric assumptions in estimating age dependence, mitigating the potential misspecification problem. Second, because the research variables in this study (i.e., the industry failure and near-failure experience variables) change as a commercial bank ages[10], the piecewise exponential model can inform the change in the estimate effect of age on failure when these research variables are added to the baseline model (Blossfeld & Rohwer, 1995; Ingram & Baum, 1997a).

The piecewise exponential model offers two options in including time-varying covariates. The first is to assume that only a baseline rate can vary across time periods but the covariates have the proportional effects in each period, and the second is to allow for period-specific effects of covariates. In this study, proportional effects of covariates were assumed. The hazard rate of bank j at time t is estimated as:

$$r_{jk}(t) = r_{jk}(t)*\exp(A_m{}^{jk}\alpha^{jk} + A_{m+n}{}^{jk}\alpha^{jk})$$

where $r_{jk}(t)*$ represents the baseline hazard rate including the effects of control variables, A^{jk} is a row vector of covariates, and α^{jk} is an associated vector of coefficients assumed not to vary across time period (Blossfeld & Rohwer, 1995).

[10] The Industry Failure Experience and the Industry Near-Failure Experience for a specific commercial bank increased as the bank ages when no discount or the continuous discount approach were used, but they do not necessarily increase with age when the discontinuous approach or the hybrid approach were used.

CHAPTER 4

RESULTS

4.1 Exploratory Investigation

4.1.1 Summary of Interviews

As described in Chapter 3.2.1, the purpose of interviews was primarily inductive and exploratory. The main objectives of interviews were (1) to build theories, (2) to check industry-specific boundary conditions, and (3) to inform the interpretation of the empirical results. Thus, the results of the series of formal and informal interviews I conducted throughout the duration of this study are embedded in theories and empirical models, and will not be separately reported in the result section. APPENDIX 4 reports a summary of a typical semi-structured, open-ended interview conducted for this study.

4.1.2 Summary of Survey

Of 130 bankers participated in the survey, 65 responded with a completed survey (response rate of 50%). Because the primary purpose of this survey was exploratory in nature, statistical analysis beyond simple descriptive statistics (e.g., median) was not performed based on the survey results. APPENDIX 5 summarizes the responses of the 22 survey questions.

Questions 1 to 4 aimed to probe whether bank managers pay attention to strategies and practices of other banks and learn from their observations. The majority of bank managers surveyed responded that they pay more than average attention to strategies and practices of other banks (Q1: median = 5) and that it was relatively easy to obtain information on the strategies and practices of other banks (Q2: median = 5). Most of respondents agreed that their banks learn from strategies and practices of other banks (Q3: median = 5) and such learning is important to improve their own performance (Q4: median = 6). Taken together, these responses suggest the occurrence of interorganizational learning in the U.S. commercial banking industry. Probing the existence of interorganizational learning in the U.S. commercial banking industry is particularly important because it identifies the interorganizational learning process embedded in the empirical relationships proposed in this study.

The next set of questions asked specifically whether bank managers consciously observe failure of other banks and learn from their observations of failures. The responses indicate that although bank managers pay only moderate attention to failure of other banks (Q5: median = 3), they generally believe that their banks learn from analyzing failure of other banks (Q6: median = 4) and that they can improve their own performance by learning from failure of other banks (Q7: median = 4).

The next three questions (Q8-Q10) were aimed to probe whether banks mangers consciously learn from near-failure experience of other banks. The responses suggest that bank managers pay moderate attention to low-performing or financially troubled banks (Q8: median = 3) and that they generally believe they could learn from analyzing such banks (Q9: median = 4). Finally, the participants were asked to compare the potential learning value of failure experience with the potential learning value of near-failure experience. Among the 65 respondents, 48 (74%) reported that they could learn more from low-performing or financially troubled banks than from failed banks (Q10). These results provided some supporting evidence to theories presented in Section 2.3, which compared survival-enhancing learning effects from failure experience versus survival-enhancing learning effects from near-failure experience.

Questions 11 to 14 explored industry-specific boundary conditions to validate assumptions used to build the empirical models. The results show that the respondents generally perceived the commercial banking industry was changing at a relatively fast rate (Q11: median = 5), and that the competitive information became obsolete rapidly (Q12: median = 5). They also responded that their banks should change strategies and practices frequently to achieve high performance (Q13: median = 5). Additionally, they believed competition in the commercial banking industry was mainly local (Q14: median = 4), which confirmed one of the main assumptions that were made to build empirical models in this study. However, it is important to note that, as industry experts and field managers I interviewed suggest, this notion is changing rapidly due to the advances in the information technology (e.g., phone banking or internet banking).

Questions 15 to 17 inquired the respondents' perception about industry categorization. Questions 15 asked managers whether their banks paid more attention to practices and strategies of similar banks than dissimilar banks. Most respondents agreed that they could learn more from similar banks than from dissimilar banks (median = 6). Question 16 and 17 examined the issues related to competition between commercial banks and other types of financial institutions. The results indicate that more respondents perceived credit unions to be more significant competitive threats than S&Ls.

Questions 18 through 21 explored the influence and the role of regulatory institutions in the commercial banking industry. The participants generally believed the role of regulatory institutions in the commercial banking industry was important in spreading practices and strategies (Q18: median = 5), and that the banking regulations had become more stringent since the mid-1980s (Q19: median = 5). Although they believed major regulatory changes could make their existing strategies and practices obsolete (Q20: median = 5), they did not perceive regulatory changes to be the most important factor that affected their strategies and practices (Q2: median = 3).

Finally, I asked the respondents' perception of relative importance of failure and success in terms of learning perspective. Although not decisive, it appears that bank managers perceived success of other banks to be a more valuable source of learning than failure of other banks (Q22: median = 3). However, it is not possible to conclude that banks learn more from success than from failure because these questions simply asked the perception of managers rather their actual behaviors.

4.2 Theory Testing

In this section, the results of statistical analyses are reported. TABLE 4-1 summarizes the findings of all statistical analyses performed in the study.

4.2.1 Descriptive Statistics and Bivariate Correlations

The data collection effort described in Chapter 3 identified 2,724 commercial banks chartered between 1/1/84 and 12/31/98. Among the 2,724 commercial banks, 28 banks were dropped from the sample because of incomplete information. Thus, the final sample contained quarterly data of 2,696 commercial banks, which is equivalent to 71,224 spells or organization-quarters.

Descriptive statistics and a bivariate correlation matrix for all study variables are shown in TABLE 5. Most of the bivariate correlation coefficients among study variables are in the moderate range (< 0.5). This moderate level of multicollinearity among study variables may inflate standard errors and consequently results in less efficient parameter estimates, but would not result in biases in the parameter estimation (Cohen & Cohen, 1983).

There are two occasions that the correlations among specific variables are relatively high. First, correlations between age/age^2 and the experience variables with no discount are high (> 0.7). This is by the model design and is expected because the experience variables with no discount monotonically increase with age. This high correlation implies that any effect of the experience variables with no discount on the dependent variable (i.e., bank failure rates) might have actually been caused by the age if age is not controlled for. The age and the age^2 variables are intended to control for a potential age dependency, which may produce a spurious relationship between the experience variables and the dependent variable. Thus, the high correlations between age/age^2 and the experience variables do not bias the model estimation. The correlations between age/age^2 and the experience variables with different discount specification were not as high.

Second, the correlations among different specifications of the experience variables are often high (> 0.6). However, the high level of correlations among different specifications of the experience variables was not a threat to the model estimation because they were not included and tested together in the same model.

The superior solution of the potential multicollinearity problem is to formulate some causal hypotheses about the origin of the multicollinearity. An alternative approach is to employ a hierarchical procedure that involves in adding variables in a hierarchical sequence (Cohen & Cohen, 1983). Although the threat of the multicollinearity problem is not severe in this thesis, sets of control and independent variables were added hierarchically to partial out any potential problem.

4.2.2 Baseline Model Estimation

Baseline Model Estimation using Exponential Model. TABLE 6 reports the hierarchical steps of constructing the baseline model for constant rate exponential hazard rate estimation. Significant tests shown in the table are two-tailed.

Nested models were estimated to construct the baseline model for exponential hazard rate estimation by hierarchically adding four sets of control variables: (1) *Organizational level control variables*, (2) *Socio-Economic control variables*, (3) *Population level density control variables*, and (4) *Control variables for Alternative Arguments*. The results of log-likelihood test showed that adding each set of control variables significantly improved the overall fit of the models over the previous models.

Model 4 represents the baseline model with all control variables except congenital experience variables. Age had a positive effect on failure rates of banks and Age^2 had a negative effect on failure rates of banks, indicating that the age of a bank initially increases but later decreases its failure rate. The size of a bank (Log (Total Asset)) decreased its risk of failure. Federally chartered banks were more likely to fail than state-chartered banks. Capital Asset Ratio, which measures the degree of capitalization of banks, had a negative impact on their failure rates.

Unemployment Rate had a positive effect on bank failure rates and Dow Jones Index had a negative effect on bank failure rates. The real estate market performance, as measured by NCREIF Index, had a negative effect on the failure rates of banks. These results are all consistent with what the standard economic theories would predict. A good economic condition (low Unemployment Rate, high Dow Jones Index, and high NCREIF Index) is likely to decrease the risk of failure of a bank. However, the state-level Personal Income had a positive effect on failure rates of banks, which is not consistent with the standard economic theories.

Among the three sets of density and density^2 variables (i.e., Commercial banks, S&Ls, and Credit unions), only density variables for S&Ls were statistically significant. S&L Density had a positive effect and S&L Density^2 had a negative effect on bank failure rates. Founding CB Density increased the failure rates of banks, which is consistent with the previous empirical studies, but Founding S&L Density decreased the failure rates of banks. Founding CU Density was not statistically significant.

CB Mass Density had a negative effect on bank failure rates, suggesting that the increase in the total mass of commercial bank population decreases the risk of failure of banks, but S&L Mass Density did not have a significant effect on bank failure rates. The number of FDIC Regulatory Enforcement had a positive effect on bank failure rates. This finding indicates that a stronger regulatory control increases the risk of failure of banks, and is consistent with the idea that regulatory agents more actively engage in closing low-performers. S&L Deposit Release had a negative impact on bank failure rates, but CB Deposit Release and CB Employee Release did not have statistically significant effects on bank failure rates, implying that the financial and managerial resources of failed commercial banks do not affect the survival chance of banks while financial resources of failed S&Ls may be absorbed by banks, consequently changing their survival chances.

TABLE 7 reports the addition of congenital industry failure and experience variables into the baseline model constructed in the previous step. Base Model 1E-6E represent the exponential baseline model with 6 different discount specifications of the congenital industry failure and operating experience. Congenital Failure Experience provided robust results across the 6 model specifications. Congenital Failure Experience consistently had a negative effect on the risk of failure of banks and was statistically significant except in Base Model 1E (no discount specification). These results suggest that the industry experience of a bank accrued before its founding increases its survival chance, implying the existence of congenital learning from industry failure experience.

Congenital Operating Experience was less robust across the 6 models than the congenital industry failure experience. Congenital Operating Experience was statistically significant only in Base Model 5E (regulation discount) and Base Model 6E (regulation + age discount), and the coefficients for the two models were positive. This result may imply that congenital learning from industry level operating experience may not produce survival-enhancing learning.

Among the 6 different discount specifications, the specification in Base Model 1E, which assumes no depreciation of congenital experience, produced the weakest model (log-likelihood ratio test = 6.44). This suggests that the learning value of congenital industry experience does depreciate with time. On the other hand, the specification in Base Model 3E, which assumes an accelerating depreciation of congenital experience (age^2 discount), and the specification in Base Model 5E, which assumes a discontinuous depreciation based on regulatory changes (regulation discount), provided the best fit to the data used in the study (Log-likelihood ratio test = 44.22 and 44.54 respectively). These findings imply that the value of congenital industry failure experience depreciates at a relatively fast rate because these two specifications that produced the most efficient models represent the fastest depreciation rates of congenital industry experience among the 6 specifications.

Baseline Model Estimation using Piecewise Exponential Model. The procedures used to construct the constant rate exponential baseline models were repeated to construct the piecewise exponential baseline models. Four sets of control variables: (1) *Organizational level control variables*, (2) *Socio-Economic control variables*, (3) *Population level density control variables*, and (4) *Control variables for Alternative Arguments* were hierarchically added, and each additional set of variables improved the fit of models significantly (not reported). TABLE 8 reports the addition of the 6 specifications of the congenital industry experience variables to the piecewise exponential baseline model constructed in the previous step. Base Model 1P-6P represent the piecewise exponential baseline model with 6 different discount specifications of the congenital industry failure and operating experience.

The specification in Base Model 1P, which assumes no depreciation of congenital experience, performed worst while the specification in Base Model 3P, which assumes an accelerating depreciation of congenital experience, and the specification in Base Model 5P, which assumes a discontinuous depreciation based on regulatory changes, generated the most efficient models. These results replicate the results obtained from the exponential baseline model analyses.

Given these baseline model estimates, the Congenital Failure Experience and Operating Experience variables based on the age^2 discount specification were used for further analyses for two reasons. First, it was one of the two discount specifications that improved the fit of models most. Second, although a major environmental change may make the experience and knowledge gained before the change less useful, the value of such experience and knowledge may not completely dissipate even after the major environmental change. The age^2 discount specification represents a more conservative assumption than the discontinuous regulation specification. Thus, it was preferred to the regulation discount that assumes discontinuous depreciation of old knowledge and information.

Exponential Model versus Piecewise Exponential Model. Overall, the results obtained from exponential baseline models (Base Model 1E-6E) and the results obtained from piecewise exponential models (Base Model 1P-6P) were comparable. Exponential baseline models performed better than piecewise exponential baseline models in terms of the model fits. The log-likelihood estimate of the exponential baseline models was consistently lower than the log-likelihood estimate of the piecewise exponential baseline models for all models specifications. These results are mainly due to the inclusion of Age^2 in the exponential baseline models. In the preliminary analysis, exponential baseline models without Age^2 were estimated, and the log-likelihood estimates of the models were comparable with the log-likelihood estimates of the piecewise exponential baseline models.

4.2.3 Constant Rate Exponential Model Estimation

TABLE 9 reports maximum-likelihood estimates for U.S. commercial banks chartered since 1984 using the constant rate exponential model. Significance tests used in the table are one-tailed for directional hypotheses and two-tailed otherwise. Models 1-1E to Model 6-1E add the industry failure and near-failure experience of commercial banks based on one of the 6 discount specifications to the baseline model based on the age^2 discount specification as described in Section 4.2.2.

The coefficients for CB Failure Experience and CB Near-Failure Experience variables in Model 1-1E to Model 6-1E, were consistent and comparable. CB Failure Experience increased the risk of failure of banks and statistically significant for all models except Model 1-1E, which assumes no discount of knowledge and experience gained since founding. These findings reject Hypothesis 1a, which predicted survival-enhancing learning from industry failure experience of organizations in the same population (i.e., commercial banks) since founding. These results indicate that the industry failure experience of banks actually decreases their survival prospect because the coefficients of CB Failure Experience were consistently positive and statistically significant for all models except Model 1-1E.

CB Near-Failure Experience had a negative coefficient for all models except Model 1-1E, and was statistically significant for all models except Model 1-1E and Model 6-1E.

Thus, the Hypothesis 2a, which predicted survival-enhancing learning from near-failure experience of organizations in the same population (i.e., commercial banks) since founding, was supported. Taken together, these results suggest that banks benefit by learning from near-failure experience of other banks but they do not benefit by learning from failure experience of other banks.

Model 1-1E, a model with industry experience variables without discount, performed most poorly (log-likelihood ratio test = 0.88). In fact, Model 1-1E was the only model that was not significantly improved over the baseline model. Model 3-1E, which used the industry experience variables that assume the accelerating continuous depreciation of prior knowledge, provided the largest improvement in fit over the baseline model (log-likelihood ratio test = 43.14). Model 5-1E, which used industry experience variables discontinuously discounted by regulatory changes, provided the second largest improvement (log-likelihood ratio test = 24.85). Model 4-1E, which used variables that assume decelerating depreciation over time ($\sqrt{Age}$), produced the second least efficient model (log-likelihood ratio test = 5.30). Taken together, these results consistently indicate that models with discount factors that assume fast depreciation (i.e., age^2 or discontinuous regulation) improved the fit over the baseline model better than models with discount factors that assume slow depreciation (i.e., no discount or $\sqrt{Age}$ discount), suggesting that experience and knowledge not only depreciate but depreciate at a relatively fast rate.

Models 1-2E to Model 6-2E add the industry failure and near-failure experience of S&Ls based on one of the 6 discount specifications to Model 1-1E to Model 6-1E. The addition of this set of variables significantly improved the fit of models for all 6-discount specifications. Model 1-2E, which assumes no depreciation of experience learned from failure and near-failure experience of S&L, and Model 3-2E, which uses the age^2 discount specification, improved the model fit most. This is consistent with the results obtained from Model 1-1E to Model 6-1E, which suggested the value of knowledge and experience depreciates with time.

Adding S&L Failure Experience and S&L Near-Failure Experience did not substantially change the results obtained from the Model 1-1E to Model 6-1E. Hypothesis 1a, which predicted the intrapopulation survival-enhancing learning from failure experience, was supported by none of the Model 1-2E to Model 6-2E. The coefficient of S&L Failure Experience was statistically significant and negative for all models, providing support for Hypothesis 1b, which predicted survival-enhancing learning from failure experience of organizations in a competing population (i.e., S&Ls).

Hypothesis 2a, which predicted the intrapopulation survival-enhancing learning from near-failure experience, was broadly supported by Model 2-2E, Model 3-2E, and Model 6-2E. The coefficient of S&L Near-failure Experience was negative for all models except the models with age^2 and regulation/age discount specifications, and statistically significant for Model 1-2E, Model 4-2E, and Model 5-2E. Thus, Hypothesis 2b, which proposed the existence of survival-enhancing learning from near-failure, was partially supported.

In summary, the results suggest that the industry failure experience of S&Ls decreased the risk of failure of banks while the failure experience of banks actually increased the risk of failure of banks. In contrast, banks were benefited from the near-failure experience of both banks and S&Ls.

4.2.4 Piecewise Exponential Model Estimation

TABLE 10 reports maximum-likelihood estimates for U.S. commercial banks chartered since 1984 using the piecewise exponential model. Significant tests used in the table are one-tailed for directional hypotheses and two-tailed otherwise. Model 1-1P to Model 6-1P each adds CB Failure Experience and CB Near-Failure Experience based on one of the 6 discount specifications to the baseline model. Overall, the results from the piecewise exponential model estimation are comparable and consistent with the results obtained from the exponential model estimation.

The results across different model specification were also generally consistent. The coefficient of CB Failure Experience was statistically significant and was positive for all models, providing no support for Hypothesis 1a. CB Near-Failure Experience had a negative coefficient for all models, and was statistically significant for Model 2-1P, Model 3-1P, and Model 5-1P, providing partial support for Hypothesis 2a.

Model 1-1P, a model with no discount, performed most poorly while Model 3-1P, a model with the age^2 discount, provided the largest improvement in the model fit over the baseline model. The results of the log-likelihood ratio tests produced a pattern that was consistent with the results obtained from the exponential model estimation. Model specifications with an accelerating discount factors (e.g., age^2) or a discontinuous discount (e.g., regulation) fit the data better than model specifications with a decelerating (e.g.,

$\sqrt{Age}$) or no discount, again implying that the learning value of experience and knowledge depreciates at a relatively fast rate in the commercial banking industry.

Models 1-2P to Model 6-2P add a set of S&L Failure Experience and S&L Near-Failure Experience to Model 1-1P to Model 6-1P. The addition of these variables again significantly improved the model fit for all model specifications. The coefficients of CB Failure Experience were positive and statistically significant, again rejecting Hypothesis 1a. Hypothesis 2a was partially supported by Model 3-2P and Model 6-2P. The coefficient of S&L Failure Experience was negative and statistically significant for all models, providing strong support for Hypothesis 1b. Hypothesis 2b was supported by Model 1-2P, Model 2-2P, Model 4-2P, and Model 5-2P.

S&L Failure Experience was statistically significant and had a negative effect on the failure rates of banks for all model specifications, providing strong support for Hypothesis 2a. Hypothesis 2b was partially supported by Model 1-2P, Model 2-2P, Model 4-2P, and Model 5-2P.

In summary, the piecewise exponential models did not provide support for Hypothesis 1a while they provided strong support for Hypothesis 1b. They also partially support for both Hypothesis 2a and 2b. The results were robust between the exponential model estimation and the piecewise exponential model estimation.

4.2.5 Learning from Failure Experience versus Learning from Near-Failure Experience

Intrapopulation Learning. Hypothesis 3a predicted that the effects of survival-enhancing learning from industry near-failure experience would be stronger than the effects of survival-enhancing learning from industry failure experience when learning occurred within an industry (intrapopulation learning). Both exponential models and piecewise models broadly support this prediction because CB Failure Experience consistently increased the failure rates of banks while the CB Near-Failure Experience generally decreased their failure rates.

Interpopulation Learning. Both exponential and piecewise models provided strong support for Hypothesis 3b, which predicted that the effects of survival-enhancing learning from industry near-failure experience would be weaker than the effects of survival-enhancing learning from industry failure experience when learning occurred between industries (interpopulation learning). The coefficient for S&L Failure Experience was statistically significant for all model specifications, and consistently decreased the risk of failure of banks. In contrast, the support for survival-enhancing learning from S&L Near-Failure Experience was less consistent and the effect size of the S&L failure experience was considerably larger than the effect size of the S&L near-failure experience.

4.2.6 Learning from Local Competitors versus Learning from Nonlocal Competitors

Exponential Model Estimation. TABLE 11 reports maximum-likelihood estimates of the effects of local and nonlocal failure and near-failure experience on failure rates of U.S. commercial banks using the exponential model. Significant tests used in the table are one-tailed for directional hypotheses and two-tailed otherwise. In this set of analyses, only 4 discount specifications (no discount, age, age^2, and regulation/age discount) among the 6 discount specifications were used to avoid too much complexity in the analysis.

Model 1-1EC to Model 4-1EC includes local and nonlocal failure and near-failure experience of commercial banks. The coefficients of both CB Local Failure Experience and CB Nonlocal Failure Experience were positive and statistically significant for all models except Model 1-1EC, which had positive and insignificant coefficients. These results indicate that neither local nor nonlocal industry failure experience of commercial banks produces survival-enhancing learning for observing commercial banks, and provide support for neither Hypothesis 4a nor 4a (Alternative).

CB Local Near-Failure Experience had a negative and statistically significant coefficient for all model specifications except Model 1-3EC (statistically insignificant) while the coefficient for the CB Nonlocal Near-Failure Experience was negative and statistically significant only for Model 2-1EC and 3-1EC. The effect size of the CB Local Near-Failure Experience was consistently larger than the effect size of the CB Nonlocal Near-Failure Experience. Taken together, these findings reject Hypothesis 4b, which predicted that survival-enhancing learning effects from nonlocal near-failure experience would be *greater* than survival-enhancing learning effects from local near-failure experience, but provide a broad support for Hypothesis 4b (Alternative), which predicted that survival-enhancing learning effects from nonlocal near-failure experience would be *weaker* than survival-enhancing learning effects from local near-failure experience.

Models 1-3EC to Model 4-3EC add a set of S&L Local Failure Experience, S&L Nonlocal Failure Experience, S&L Local Near-Failure Experience, and S&L Nonlocal Near-Failure Experience. The addition of this set of variables significantly improved the model fit for all model specifications.

S&L Local Failure Experience was negative and statistically significant for all model specifications except for Model 3-3EC (Age^2 discount specification). S&L Nonlocal Failure Experience was also negative and statistically significant for all models. The effect size of S&L Local Failure Experience was larger than the effect size of S&L Nonlocal Failure Experience for all models except Model 3-3EC. These findings broadly support Hypothesis 4c (Alternative), and suggest survival-enhancing learning effects from the local failure experience of S&Ls has a greater survival-enhancing learning effects from the nonlocal failure experience of S&Ls.

Similar results were obtained from the S&L near-failure experience variables. S&L Local Failure Experience was negative and statistically significant for all models and S&L Nonlocal Failure Experience was negative and statistically significant for Model 1-3EC and Model 4-3EC. The effect size of S&L Local Failure Experience was consistently larger than the effect size of S&L Nonlocal Failure Experience. These findings broadly support Hypothesis 4d (Alternative), which predicted a greater survival-enhancing learning effect from local near-failure experience than from nonlocal near-failure experience.

Piecewise Exponential Model Estimation. TABLE 12 reports maximum-likelihood estimates of the effects of local and nonlocal failure and near-failure experience on failure rates of U.S. commercial banks using the piecewise exponential model. The results are broadly comparable and consistent with the results obtained from the exponential model analyses.

In summary, these results suggest that learning from *local* failure and near-failure experience generates stronger survival-enhancing learning effects than learning from *nonlocal* failure and near-failure experience.

CHAPTER 5

DISCUSSION

5.1 Summary

This thesis has shown that failure of other firms can enhanced the survival prospect of remaining firms, which I attribute to learning from failure and near-failure experience of others. TABLE 4-2 summarizes the survival-enhancing learning from failure and near-failure experience in both intrapopulation and interpopulation settings, and shows the following 5 main findings for these contrasts:

(1) The failure experience of other banks (the same industry) did not produce survival-enhancing learning by the banks in the sample. On the contrary, the failure experience of banks decreased the survival prospect of the banks in the sample.

(2) The failure experience of S&Ls (a different but related industry) produced survival-enhancing learning by the banks in the sample.

(3) In the both intrapopulation (banks) and interpopulation (S&Ls) settings, the near-failure experience of others produced survival-enhancing learning by the banks in the sample.

(4) In the intrapopulation setting, the survival-enhancing effects of the near-failure experience of other banks were stronger than the survival-enhancing effects of the failure experience of other banks.

(5) In the interpopulation setting, the survival-enhancing effects of the near-failure experience of S&Ls were weaker than the survival-enhancing effects of the failure experience of S&Ls.

TABLE 4-3 summarizes the survival-enhancing learning from local and nonlocal failure and near-failure experience, and shows the following 6 findings:

(1) Neither local nor nonlocal failure experience of other banks produced survival-enhancing learning by the banks in the sample.

(2) The local near-failure experience of other banks generally produced survival-enhancing learning by the banks in the sample while the nonlocal near-failure experience of other banks did not produce survival-enhancing learning by the banks in the sample.

(3) Both the local and nonlocal failure experience of S&Ls generally produced survival-enhancing learning by the banks in the sample.

(4) The survival-enhancing effects of local failure experience of S&Ls were stronger than the survival-enhancing effects of their nonlocal counterpart.

(5) Both the local and nonlocal near-failure experience of S&Ls generally produced survival-enhancing learning by the banks in the sample.

(6) The survival-enhancing effects of local near-failure experience of S&Ls were stronger than the survival-enhancing effects of nonlocal near-failure experience.

Taken together, these results support theories of interorganizational learning from the failure of others. They point to potentially conflicting influences of the visibility versus applicability of vicarious experience and a complicated relationship between the effects of interorganizational learning and competitive dynamics among firms. The pattern of these results underscore that such survival-enhancing learning from failure and near-failure experience of others represents a complex process, and implies important interactions between factors that influence the occurrence and value of interorganizational learning processes.

5.2 Theoretical Implications of Baseline Models

The modeling strategy of this study followed the behavioral learning tradition. Learning was measured by learning outcomes (i.e., differential survival prospect) rather than learning processes. The absence of direct evidence of learning required a baseline model that carefully account for potential alternative arguments. Thus, the main focus on my modeling strategy in constructing baseline models was to rule out alternative arguments to interorganizational learning and to purify compounded learning effects.

Age had a positive effect on failure rates of banks and Age^2 had a negative effect on failure rates of banks, indicating that the age of a bank initially increases but later decreases its failure rate. These results are consistent with the liability of adolescence arguments, which predict an inverted U-shaped relationship between an organization's age and its failure (Bruderl & Schurssler, 1990; Fichman & Levinthal, 1991; Mitchell & Singh, 1993).

The size of a bank (Log (Total Asset)) decreased its risk of failure, supporting the liability of smallness claim (Delacroix & Swaminathan, 1991; Levinthal, 1991). This finding is also consistent with prior studies that used assets as a measure of size (Amburgey et al., 1994; Barron et al., 1994).

Federally chartered banks were more likely to fail than state-chartered banks. Several bank managers who were interviewed during this study attributed this finding to the "higher" performance standard imposed to the federally chartered banks by regulatory agencies.

Capital Asset Ratio, which measures the degree of capitalization of banks, had a negative impact on bank failure rates, as the standard financial theories would predict. The capital asset ratio of banks had an almost perfect correlation coefficient with their return on asset ratio (ROA), which measures the profitability of a bank as a percentage of the average asset of the bank. Thus, Capital Asset Ratio addresses the effects of the profitability of a bank on its failure rate as well as the effects of the financial stability of a bank on its failure rate.

Among the three sets of density and density^2 variables (i.e., Commercial banks, S&Ls, and Credit unions), only density variables for S&Ls were statistically significant. S&L Density had a positive effect and S&L Density^2 had a negative effect on bank failure rates. At first glance, these results appear inconsistent with previous studies on the density dependence, which predicted a U-shaped relationship between density and failure rates (Hannan & Freeman, 1987; Hannan & Freeman, 1988; Carroll & Hannan, 1989; Barnett, 1990; Baum & Oliver, 1992; Brittain, 1994). This difference may be explained by the incomplete industry history studied in this thesis. The prior studies on population density usually investigated the entire history of an industry or a population of organizations while this thesis used a partial history of the U.S. commercial banking industry. The positive effects for density occur early in a population history, and would not be expected to occur in a mature industry, such as studied here.

Of particular interest in the baseline model estimation are the results from the industry level congenital failure and operating experience. The congenital industry failure experience decreased bank failure rates while the congenital industry operating experience had no effect on bank failure rates. This difference in the effects of failure and operating experience implies that there may be differences in how these two types of experiences are processed by organizations.

These findings are not consistent with a prior study by Ingram and Baum (1997b). They investigated the effects of industry operating experience at entry and industry competitive experience at entry[11] on failure rates of Manhattan hotels, and found that the industry operating experience at entry decreased failure rates of Manhattan hotels while the industry competitive experience at entry had no effect. This inconsistency might be an artifact of the differences between the two industries, the differences in the study period, and/or the differences in how the operating experience was measured. More investigation of the processes related to learning from the two types of industry experiences is required to reach a more comprehensive conclusion.

[11] The industry competitive experience was measured with the number of Manhattan hotels. Thus, their definition of the industry competitive experience is comparable with the industry failure experience used in this study.

5.3 Theoretical Implications of Study Findings: Survival-Enhancing Learning from Failure and Near-Failure Experience

5.3.1 Intrapopulation Survival-Enhancing Learning: Learning *within* an Industry Segment

The results suggest that failure experiences of firms do not produce survival-enhancing learning by other firms in the same industry. In contrast, near-failure experiences of firms do produce survival-enhancing learning by other firms in the same industry. Taken together, these results support the arguments that the value of the quality and richness of knowledge of near-failure experience surpasses the effect of higher visibility of failure experience in the *intrapopulation learning*. Because failure removes routines and practices of failed firms permanently from a population, other firms may not have an opportunity to learn by observing the failure experience due to the ambiguity and paucity of information. This finding is consistent with theories of interorganizational learning that emphasize the importance of information availability and quality (Levitt & March, 1988; Huber, 1991; Levinthal & March, 1993).

The failures experience of banks in the same industry actually increases the failure rates of remaining banks. This finding is not consistent with the previous empirical research on the effects of prior failures on subsequent failure rates. These studies generally suggest that prior failures in a population decrease the failure rates of other organizations in the population (Carroll & Hannan, 1989; Delacroix et al., 1989; Aldrich et al., 1994). These findings have been usually attributed to the increased amount of resources released by failed organizations, which can be absorbed by remaining organizations in the population and consequently make them stronger competitors.

In this study, this increased resource argument was ruled out by the inclusion of 3 control variables (i.e., CB Resource Release, CB Employee Release, and S&L Resource Release) that controlled for the effects of financial and managerial resources released by failed banks and S&Ls. Assuming these control variables effectively controlled for those alternative arguments, the residual force that operated to produce the positive relationship between prior bank failures and the subsequent failure rates of banks could be interorganizational learning. This may imply that interorganizational learning from industry failure experience, in fact, has a negative impact on organizational performance.

I speculate that firms might increase their risk of failure by learning from industry failure experience because the insufficient information provided by failure experience may lead them to draw incorrect inferences that could misguide their future strategies and actions. Managers may engage primarily in "avoidance learning" rather than "inferential learning" when learning from failure experience of others for two reasons. First, failure experience of others may not provide managers enough information from which they can draw confident inferences. Because managers cannot construct a valid causal map from their observation due to the insufficient information observed from others' failure, they may choose to simply avoid strategies and practices that seemingly produced the highly undesirable organizational outcome. Second, managers may react to others' failure primarily based on fear of replicating such failure, and the fear may drive them to engage in the avoidance learning.

Simply avoiding actions and strategies of failed organizations may prove to be a good learning strategy in some occasions, but may adversely affect a firm's performance in other occasions. For example, during the 1980s, many banks began to reduce their real estate loans after having observed that many bank failures were associated with bad real estate loans. However, this avoidance meant a substantial decrease in their revenues, and contributed to further increase in failure rates of banks in the late 1980s.

However, it is still possible that the positive effect of prior failure on subsequent failure rates might be an artifact of the study period. The study period (1984-1998) was not an ordinary period for the U.S. commercial banking industry as it witnessed a great number of abnormalities (e.g., an extraordinary large number of bank failures occurred during the period and a large number of major regulatory changes that put into action during the period). To rule out this possibility, I estimated models with a new control variable, Calendar Year, which controls for the effects of the time trend (see TABLE 13-1 to TABLE 13-3). Calendar Year is a continuous variable that was measured by the number of months that have passed since the starting date of this study (1/1/1984). The results from these models were consistent with the models without the additional control variable, suggesting that the abnormalities in the study period did not affect the results.

The negative role of failure experience in the interorganizational learning process may also be explained by the threat-rigid behaviors of managers. According to theories of threat-rigidity, failure increases rigidity rather than change by restricting information processing and constricting in control. Firms facing a crisis tend to limit the number of information sources consulted and to restrict attention to potential solutions in ways that amplified inertial tendencies (Staw, Sandelands, & Dutton, 1981; Cameron, Kim, &

Whetten, 1987; D'Aveni, 1989). After observing many failures of other firms in the same industry, managers may show signs of treat-rigidity because prevalent failures in the same industry are likely to heighten their sense of threat and crisis although the failures are not their own. Thus, in the face of an industry-level crisis, managers may become inert by choosing to reinforce their existing strategies, practices and routines instead of learning from failures they observed. During the study period, the U.S. commercial banking industry experienced the most serious crisis since its birth as evidenced by the extraordinary upsurge in the number of bank failures – far more than any other period since the advent of FDIC in the 1930s. This industry-level sense of crisis may have triggered bank mangers' threat-rigid behaviors, and made them resistant to change and learning. In a sense, failure experience may have become an obstacle to interorganizational learning rather than an engine of interorganizational learning.

Learning from Recent versus Distant Experience. In Section 1.2, I proposed a conceptual framework of studying interorganizational learning, and one of the 4 key dimensions identified in the framework was "time." Although I did not propose formal hypotheses on how time affects survival-enhancing learning, I examined the role of time in the interorganizational learning process by comparing the industry congenital failure experience and the industry failure experience since entry. The congenital experience typically represents "old" experience when compared to the experience since a bank's entry into the market. The findings suggest that the congenital industry failure experience produces (i.e., old industry failure experience) survival-enhancing learning while the industry failure experience since a bank's entry (i.e., recent industry failure experience) has a negative effect on the survival rate of the bank.

The findings of prior empirical studies on the differential effects between distant and recent experience are mixed at best. Baum and Ingram (1998) found that population operating experience at the time of founding played a much larger role in lowering failure rates of Manhattan hotels than population operating experience accumulated since their founding. Argote and her colleagues also found that interorganizational transfer of knowledge had much more effects at the time that a shipyard was built than after operation was ongoing (Argote, Beckman, & Epple, 1990). On the other hand, Barnett and Hansen (1996) found that banks' recent competitive experience decreases their failure rates while banks' distant competitive experience increases their failure rates. Ingram and Baum (1997b) showed industry competitive experiences of Manhattan hotels since their entry decreases their failure rates while industry competitive experience at entry had no effect.

Related Limitations and Future Research. These results as well as other results of this thesis point to the complexities involved in interorganizational learning processes. The relative impacts of distant and recent experience may depend on a number of factors such as the type of experience (e.g., operating experience or competitive/failure experience) and/or the nature of the industry.

The industry failure experience of a bank since its entry was lagged by one year because interorganizational learning may not occur spontaneously and it will take time before the effects of interorganizational learning are realized. "One year" was selected based on information obtained from my interviews with industry experts and bank managers. They generally agreed that one year is a reasonable assumption for two reasons.

First, the information flows relatively fast because both financial and managerial information on banks are relatively easy to obtain and there are layers of communication mechanisms that promote information flow among banks (e.g., regulators, affinity groups, etc.). Second, the effects of learning can be realized relatively fast in the commercial banking industry because new strategies and practices can be implemented quickly. However, it is possible that the effects of interorganizational learning may take less or more time than one year to be realized. Conducting a sensitivity analysis by using different lag period will improve our understanding of the role of time in the interorganizational learning process.

I began this study by stating that the current notion of organizational learning has a success bias, and explored the potential value of failure as a source of interorganizational learning. By the same token, the present study may have introduced a new breed of bias, which can be tentatively named as a "failure bias," because this study assumes that organizations can independently learn from failure experience of others. The complex pattern of interorganizational learning from failure may imply that organizations may use a more complicated learning mechanism than independently learning either from failure or success.

The definition of failure and success is inherently vague because it is a relative term rather than an absolute term. For example, a moderately performing organization may be considered to be a failure from the perspective of a successful organization while a poorly performing organization may regard it as a success. Thus, I speculate organizations may learn from other organizations by making a contrast between failure and success and drawing inferences from the contrast. In other words, interorganizational learning may be driven by "variance" between success and failure rather than the absolute value of success and failure. This notion is consistent with fundamental theories of experimental research (Cook & Campbell, 1979). Although the near-failure variable used in this study partially incorporates this variance idea, it does not fully address this issue. A future study that explores this variance idea could substantially improve our understanding of interorganizational learning mechanisms.

In addition, my approach to learning often assumes the key learning objective is finding valid causal laws about operating in a given industry. Alternatively, varied experience may have value because it permits the creation of new-to-the-world ideas or combinations of strategies. This work opens the door to many possible specific types of interorganizational learning, without directly examining, which occurs under what conditions. In spite of the obvious methodological challenges to such work, further research not only on specific learning processes but also on their relative value is clearly merited.

In this thesis, I primarily focused on identifying interorganizational learning processes that involve interpretation of events and the construction of valid causal models. Future research may benefit by exploring how failure and near-failure experience contribute to the creation of new knowledge and ideas for actions.

The industry failure and near-failure experience variables represent the key variables in this study. I used various specifications to test the robustness of the measures, and the results were generally robust across different specifications. However, I did not directly estimate the depreciation rate (Argote, 1999). A more accurate and comprehensive estimation of interorganizational learning depreciation rate could enhance the validity of this line of research.

By depreciating experience learned in the past, I accounted for antiquation of the value of outdated knowledge and experience, but depreciating past experience does not account for the decreasing return of learning from additional experience. If many organizations fail, at some point little new information is gained from one more failure. Thus at least in a moderately stable environment, there is some limit to what can actually be learned from failures, so the strength of the impact of each new failure should be weakened. The industry failure and near-failure experience variables used in my dissertation do not specify this potential impact of decreasing return from accumulating experience. A new set of industry experience variables based on a specification that reflects the decreasing return from accumulating experience (e.g., log(*Industry Failure Experience*)) may produce a different pattern of results.

5.3.2 Interpopulation Survival-Enhancing Learning: Learning *between* Industry Segments

Survival-enhancing learning from failure and near-failure experiences of organizations in a related but different population (i.e., S&L) produce a different pattern from the survival-enhancing learning from failure and near-failure experience of organizations in the same population (i.e., banks). Both industry failure and S&L near-failure experience produced survival-enhancing learning by observing banks, but the survival-enhancing learning effects of S&L failure experience was considerably stronger than the survival-enhancing effects of S&L near-failure experience.

These findings are consistent with my prediction that effects of the visibility of vicarious experience may be more important in determining the effectiveness of survival-enhancing learning than the potential value of rich information in the *interpopulation learning*. Because firms generally allocate a lower level of their monitoring efforts to firms in a different industry segment than those in the same industry segment, they may have a lower chance of observing and learning from near-failure experience of firms in a different industry segment.

Even if they realize the occurrence of near-failure experience of firms in a different industry segment, it is rather difficult to correctly interpret tacit and discursive knowledge and process information embedded in near-failure experiences of firms in a different industry segment due to differences between the two industry segments and the lack of industry-specific knowledge that is necessary to interpret their observation. In contrast, failure is a highly visible and relatively simple event to interpret even for firms outside the industry segment, and may provide them with an opportunity to engage in survival-enhancing learning.

5.3.3. *Within* Industry Learning versus *Between* Industry Learning

The findings summarized in Section 5.3.1 and 5.3.2 propose an interesting but challenging puzzle. If the industry failure experience of organizations in the same population does not produce survival-enhancing learning because of insufficient and low-quality information, why does the industry failure experience of organizations in a different population produce survival-enhancing learning?

Scholars in the institutional theory tradition have argued that organizations can increase their survival prospect by increasing their legitimacy because organizations are driven to incorporate the practices and routines defined by the institutional environment (DiMaggio & Powell, 1983; Meyer & Rowan, 1991). A widespread failure of organizations in a population may decrease the legitimacy of organizations that share the same organizational form with the failed organizations, further increasing the failure rates of the organizations in the population. From this perspective, failure of organizations in a population can be viewed as a "de-legitimization" process for the population as a whole. It is, of course, unlikely that failure of only a small portion of organizations in a population would de-legitimize the population, but failure of a significant number of organizations in a population could undermine the legitimacy of the population.

During the period between the mid-1980s and the mid-1990s, failure of commercial banks was epidemic. The large number of failures of commercial banks during the period may have diluted their legitimacy and negatively affected their survival prospect. For example, customers who witnessed prevalent bank failures might have lost their confidence in their banks and moved their businesses to somewhere else for the fear that their banks might go bankrupt as well. If this de-legitimization effect of banks failures is stronger than the survival-enhancing learning effect of bank failures, the net effect of the industry failure experience of banks should be negative.

Failure of S&Ls may similarly de-legitimize the S&L population but is not likely to de-legitimize the bank population because banks and S&Ls are substantially different. These arguments are consistent with the empirical findings, which showed that the industry failure experience of S&Ls increased the survival prospect of banks while the industry failure experience of banks decreased the survival prospect of banks.

In this study the de-legitimization process has not been tested in the empirical models. The de-legitimization process could be measured by press coverage, congressional testimony, or consumer survey. A future study that measures and tests this de-legitimization process along with interorganizational learning process may reveal an interesting pattern of interorganizational dynamics and socialization processes.

An extension of the threat-rigidity arguments discussed in Section 5.3.1 also provides an explanation to this puzzle. Observing widespread failures of other banks may heighten bank managers' sense of threat, and may lead them to believe that they are also at risk of failure. In contrast, bank managers may not associate failures of S&Ls with their own destiny because the failures occurred in a different industry, and they may believe banks are substantially different from S&Ls. Thus, failure experience of banks may increase the rigidity in bank managers, which may prevent them from adopting strategies and actions that could help them to avoid the same fate of the failed banks. On the other hand, failure experience of S&Ls may encourage them to learn from their observations.

Theories of interorganizational learning and evolution also imply that this puzzling contradiction may arise from the complicated dynamics between interorganizational learning and competition. Organizational learning has been argued to be a source of sustainable competitive advantage through improved efficiency (Yelle, 1979; Epple et al., 1991), acquisition of new knowledge and skills (Cohen & Levinthal, 1990) or better understanding of the environment. However, achieving higher efficiency or acquiring more knowledge may not translate into higher performance if its competitors learn simultaneously in the network of competitors (Mezias & Lant, 1994). Firms competing in the market place try to outcompete their competitors by learning new knowledge and skills, which in turn triggers the same behavior in their competitors. This reciprocal, self-reinforcing process of learning is known in the literature on biological evolution as the "Red Queen" effect (Barnett & Hansen, 1996). As in biological competition, banks may improve performance in some absolute sense by learning from experience of firms in the same industry, but gain no advantage if all other banks make the same gains from the experience.

Researchers in the economics tradition have also argued that knowledge external to a firm and shared with competitors cannot serve as a sustainable source of competitive advantage (Barney, 1986). Resource-based theory also suggests that common capabilities are sources of competitive parity but not competitive advantage (Levinthal, 1994).

I speculate that banks may not improve their survival prospect by learning from failure experience of other banks because banks learn and compete with each other at the same time.

5.3.4 Survival-Enhancing Learning from *Local* and *Nonlocal* Experience

TABLE 4-3 summarizes the findings on survival-enhancing learning from local and nonlocal experience. The results broadly suggest that local experience is a more effective source of survival-enhancing learning than nonlocal experience in the context of both intrapopulation and interpopulation learning.

The results support theories emphasizing the importance of managerial attention and applicability of lessons vicariously learned from others. The mental models and strategic decision of mangers frequently determines the information flows and the industry boundary (Porac et al., 1989; Carpenter & Golden, 1997). This cognitive limitation of mangers may lead them to set their learning target mainly to firms within their mental boundaries of competition, and this selective attention of managers may make learning from nonlocal experience more difficult to take place than learning from local experience.

It has been also argued that organizations search locally when they seek for new routines and practices (March & Simon, 1958; Cyert & March, 1963). Ocasio (1995) also proposed "economic adversity induces localized problemistic search biased along the direction of the dominant schemas for inference and response" (p. 321). This implies that, when faced with failure, firms attempt to find solutions that are congruent with the assumptions and values that they have learned over time. Thus, when learning from failure experience of others, firms may primarily search local experience rather than nonlocal experience. Although failure is a potent motivator of interorganizational learning, it may not promote a full spectrum of organizational change due to the threat-rigid tendency of organizations.

Even when lessons can be learned from nonlocal market experience, such lessons may have limited value, as the usefulness of such lessons is contingent on the market-specific factors such as customer preference, nature of competition, and distribution and sales networks (Ito, 1997; Greve, 1999). This may imply that it is relatively difficult for firms to effectively select, transfer, and apply knowledge and information acquired from nonlocal market.

The results also suggest that lessons learned from local failure experience might be different from lessons learned from nonlocal experience. Direct competitors or competitors operating in the same market often pose a strategic challenge to managers. While they are firms that are closely monitored, they also engage in competition with the focal firm over resources, and this interdependence makes strategic decision-making a more complicated and multidimensional process. When firms learn from their local competitors, they may focus on learning lessons that could outcompete their competitors. However, this aggressive learning strategy may trigger counter-learning in competitors, which could eventually result in a status quo at best. Head-to-head competition will reduce the benefit of learning. Alternatively, firms may attempt to learn lessons that could enhance their ability to co-exist with their competitors without initiating a reciprocating learning process. This "symbiotic" learning may not only enhance their survival-prospect but also improve their competitors' survival-prospect. Consistent with this argument, prior research found that organizations are less likely to enter a market position already occupied by another organization in the same geographical market (Greve, 1996).

Related Limitations and Future Research. In this thesis, banks are assumed to compete locally rather than globally. Although my exploratory investigation (i.e., interviews and survey) confirmed this assumption is true in the U.S. commercial banking industry, this two-dimensional assumption of competition (i.e., local versus nonlocal) may be too simplistic to reflect the actual competitive dynamics among banks. The competitive dynamics among banks may unfold a more complex pattern due to various interactions among cognitive and behavioral aspects of firms in the web of competition. For example, the interviews with industry experts revealed that bank managers' perception about competition in the commercial banking industry is often directional. Small banks usually consider large banks as competitors while large banks often ignore competitions from smaller banks because they believe the presence of small banks does not significantly affect their performance. Previous studies have also suggested that organizations have a tendency to learn more from similar organizations (Haunschild & Miner, 1997; Haleblian & Finkelstein, 1999). Incorporating these multidimensional competitive dynamics into the empirical models may reveal substantially different learning processes and will be valuable in deepening our understanding on the interaction between competitive dynamics and interorganizational learning.

5.4 Contribution to Management and Strategy Practice

Traditionally, success has been considered to be a source of useful information and knowledge, and learning from success has become a management norm although it has been labeled with different terms such as "Benchmarking", "Kaizen", and "Reverse engineering". In contrast, failure has been considered something to be hidden or ignored. Consequently, there is little existing management literature on how to harvest value from failure experience. This work provides some potential insights for practitioners.

This thesis provides an important concept to practitioners by encouraging them to look at both successes and failures rather than blindly imitating the practices of only successful firms, and by providing some insight into the relative value and issues related to different learning options. A firm may be able to enhance its survival prospects by "post-mortem" benchmarking failed firms and avoiding the collision courses on which they traveled. This study may also provide a deeper understanding of factors that managers should consider when implementing a system that facilitates interorganizational learning. In addition, my interpretation of the results also implies that it may be useful to seek rich knowledge of the experience of others, rather than simply avoiding what appeared to produce failure. The failure of others, or its contrast to success may be helpful not only because it reveals causal patterns about what has worked or not worked in the past, but because it can stimulate creation ideas about new organizational strategies or practices.

This study may also have value for trade associations and other industry groups seeking to enhance the prosperity of an entire industry. The results showed positive value for congenital failure experience, underscoring the importance of industry-level experience for future organizations. This study implies central bodies may play a role in facilitating learning by focal organizations from the failure of other members of the collectivity. It provides evidence about the potential for using individual failures to improve the lot of survivors, and provide hard data on the relative impact of near and total failures on other firms in the population.

The importance of learning from failure has recently increased as the advent of electronic commerce. The seemingly unlimited opportunities in the Internet space have lured a huge number of entrepreneurs, venture capitalists, and incumbent firms into the arena. However, due to the high-risk nature of the industry, the industry has witnessed a huge number of failures. Industry observers have emphasized the importance of learning from failure of early entrants because the industry is changing at an incredible speed and continuous learning from the past mistakes in the industry is the key to the survival (Hagel & Armstrong, 1997). My thesis addresses one of the most pressing needs of firms in this emerging industry, and may provide them with important insights for developing systematic learning strategies.

5.5 Contribution to Theory

This thesis advances our basic understanding of interorganizational learning and of the potential effects of learning from failure. Overall, the results support and offer important extensions of theories of interorganizational learning from failure of others (Miner et al., 1999). During the last decade, organizational learning theory has drawn much attention (March et al., 1991; Levinthal & March, 1993; Miner & Mezias, 1996; Argote, 1999). Despite the growing volume of studies in this domain, we still lack a major body of empirical literature on vicarious organizational learning and its population level consequences. My research helps address this gap in the literature in several ways.

By comparing near-failure effects to complete failure effects in intrapopulation and interpopulation learning, this work emphasizes the important idea that learning may be influenced by both the content and the visibility of observed events. By examining survival-enhancing learning, it also underscores the "bottom line" performance impact of possible learning processes.

It also illuminates factors that moderate the potential for vicarious failure-based learning. Specifically, it highlights the notion interorganizational learning process may be influenced by both the content and the visibility of observed events, and that these influences may have conflicting impact.

Although the unit of analysis of this study is an organizational and statistical analyses were performed at the organizational level, it illuminates many issues related to population level learning, a concept proposed by Miner and Haunschild (1995), by highlighting "collective" knowledge sharing and actions. It advances the framework of population level learning and helps us to build a more comprehensive theoretical approach to learning from failure, success and variance.

This study also investigates links between interorganizational learning and competition, one of the most crucial issues in contemporary strategy and management theory. In particular, I investigate this issue in the multiple population setting. There are very few studies that investigated the interpopulation dynamics although it is an important strategic management issue and may affect interorganizational learning impact. This study brings attention to the potential moderating factors that such interpopulation dynamics may bring into the equation of interorganizational learning process of business organizations.

In prior work I have argued that learning can occur at multiple levels of analysis, and that different elements of learning -- such as memory, experience, knowledge acquisition, creation or use -- may or may not be collective (Miner et al., 1999). In this research, I have focused most of the interpretation on how population levels of experience may influence learning by individual organizations. Key independent variables represent population level variables, however, extending the literature that examines how population level experience can influence the fate of members of organizational populations. By including two different industries I also emphasize the potential impact of inter-industry learning processes, a focal point of population level learning theories. The pattern of results points to potentially powerful links between interorganizational learning processes and competitive dynamics within and between populations. These early results provide a promising platform for continuing investigation of ecologies of learning and competition.

This study also contributes to neoinstitutional theory by further highlighting the potentially subtle interactions of context and organizational action, and the possibility that looking to others for cues involves complex processes. My findings provide intriguing evidence that high failure rates could *"de-legitimize"* a focal industry, while a related industry does not experience the same effects. In addition, this study contributes to work in the population ecology tradition. While population ecologists emphasize the impact of resources freed up by failure (Baum, 1996), I raise the possibility that interorganizational learning (specifically, learning from failure of others) may contribute to the decrease in the subsequent failure rates.

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TABLES

TABLE 2
Types of Failure and Near-Failure Experience

Type	Learning Value	Visibility
Types of Failure Experience		
Transition: *FROM* Satisfactory (or High) Performance *TO* Failure	**Low** • Observers may learn symptoms and causes of failure but not solutions. • Members of a failed organization may attempt to hide information to save their face.	**Very high** • A sudden death draws the attention of other organizations both within and across populations. • Shock effect.
Transition: *FROM* Near-failure *TO* Failure	**Moderate** • The moment of failure acts as a divide between two kinds of different learning: One that is ongoing until failure, the other that happens as a result of the failure. This two-step learning process may provide richer information to observers.	**High** • Failure is generally well-publicized through various media. • Failure is generally an unambiguous event.
Types of Near-Failure Experience		
Transition: *FROM* Satisfactory (or High) Performance *TO* Near-Failure	**Low to Moderate** • Observers may regard this as a temporary status change rather than something they can learn from. • Learning occurs both in the external observers and in the organization that survived a threat of failure. • This may provide tacit and discursive information on the process.	**Low** • Managers may try to hide information to disguise ongoing health of their organizations.
Extended Stay: *IN* Near-Failure State	**Moderate to High** • The extended time period may provide more information about the failure processes. • The longitudinal information may help to clarify the causal direction of this event.	**Moderate** • The longer time frame may provide more chance to be observed.
Transition: *FROM* Near-Failure *To* Satisfactory (or High) Performance (Recovery)	**Very high** • Observation provides not only the symptoms and the causes of failure but also potential cures or solutions for the demise.	**High** • Managers may proudly advertise their success or turnaround. • Firms usually direct their attention to finding solutions rather than causes.

TABLE 3-1
Summary of All Independent Variables

Variable Name	Description	Function/Note
CB Failure and Near-Failure Experience		
CB Failure Experience /No Discount	Sum of the number of all FDIC-insured commercial banks that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1} \textit{Total Number of CB Failure}_t$
CB Failure Experience /Age	Discounted (by age) sum of the number of all FDIC-insured commercial banks that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{\textit{Total Number of CB Failure}_t}{Age}$
CB Failure Experience /Age^2	Discounted (by age^2) sum of the number of all FDIC-insured commercial banks that have failed since the founding of a focal bank discounted	$\sum_{t_F}^{t-1} \frac{\textit{Total Number of CB Failure}_t}{Age^2}$
CB Failure Experience /$\sqrt{age}$	Discounted (by $\sqrt{age}$) sum of the number of all FDIC-insured commercial banks that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{\textit{Total Number of CB Failure}_t}{\sqrt{Age}}$
CB Failure Experience /Regulation	Sum of the number of all FDIC-insured commercial banks that have failed since the latest regulatory change	$\sum_{t_{RL}}^{t-1} \textit{Total Number of CB Failure}_t$
CB Failure Experience /Regulation + Age	Discounted (by age) sum of the number of all FDIC-insured commercial banks that failed between the founding of a focal bank and the latest regulatory change plus sum of the number of all FDIC-insured commercial banks that have failed since the latest regulatory change	$\sum_{t_F}^{t_{RL}-1} \frac{\textit{Total Number of CB Failure}_t}{Age} + \sum_{t_{RL}}^{t-1} \textit{Total Number of CB Failure}_t$
CB Near-Failure Experience /No Discount	Sum of the number of all FDIC-insured commercial banks that have experienced near-failure (banks that received a below-average CAMEL rating for at least 2 consecutive quarters and then moved up to an above-average CAMEL rating) since the founding of a focal bank	$\sum_{t_F}^{t-1} \textit{Total Number of CB Near–Failure}_t$
CB Near-Failure Experience /Age	Discounted (by age) sum of the number of all FDIC-insured commercial banks that have experienced near-failure since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{\textit{Total Number of CB Near–Failure}_t}{Age}$

CB Near-Failure Experience /Age^2	Discounted (by age^2) sum of the number of all FDIC-insured commercial banks that have experienced near-failure since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ CB\ Near\text{–}Failure_t}{Age^2}$
CB Near-Failure Experience $/\sqrt{age}$	Discounted (by $\sqrt{age}$) sum of the number of all FDIC-insured commercial banks that have experienced near-failure since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ CB\ Near\text{–}Failure_t}{\sqrt{Age}}$
CB Near-Failure Experience /Regulation	Sum of the number of all FDIC-insured commercial banks that have experienced near-failure since the latest regulatory change	$\sum_{t_R}^{t-1} Total\ Number\ of\ CB\ Near\text{–}Failure_t$
CB Near-Failure Experience /Regulation + Age	Discounted (by age) sum of the number of all FDIC-insured commercial banks that experienced near-failure between the founding of a focal bank and the latest regulatory change plus sum of the number of all FDIC-insured commercial banks that have experienced near-failure since the latest regulatory change	$\sum_{t_F}^{t_R-1} \frac{Total\ Number\ of\ CB\ Near\text{–}Failure_t}{Age} + \sum_{t_R}^{t-1} Total\ Number\ of\ CB\ Near\text{–}Failure_t$

S&L Failure and Near-Failure Experience		
S&L Failure Experience /No Discount	Sum of the number of all FDIC-insured S&Ls that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1} Total\ Number\ of\ S\&L\ Failure_t$
S&L Failure Experience /Age	Discounted (by age) sum of the number of all FDIC-insured S&Ls that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ S\&L\ Failure_t}{Age}$
S&L Failure Experience /Age^2	Discounted (by age^2) sum of the number of all FDIC-insured S&Ls that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ S\&L\ Failure_t}{Age^2}$
S&L Failure Experience $/\sqrt{age}$	Discounted (by $\sqrt{age}$) sum of the number of all FDIC-insured S&Ls that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ S\&L\ Failure_t}{\sqrt{Age}}$
S&L Failure Experience /Regulation	Sum of the number of all FDIC-insured S&Ls that have failed since the latest regulatory change	$\sum_{t_R}^{t-1} Total\ Number\ of\ S\&L\ Failure_t$

S&L Failure Experience /Regulation + Age	Discounted (by age) sum of the number of all FDIC-insured S&Ls that failed between the founding of a focal bank and the latest regulatory change plus sum of the number of all FDIC-insured commercial banks that have failed since the latest regulatory change	$\sum_{t_F}^{t_R-1}\frac{Total\ Number\ of\ S\&L\ Failure_t}{Age} + \sum_{t_R}^{t-1} Total\ Number\ of\ S\&L\ Failure_t$
S&L Near-Failure Experience /No Discount	Sum of the number of all FDIC-insured S&Ls that have experienced near-failure since the founding of a focal bank	$\sum_{t_F}^{t-1} Total\ Number\ of\ S\&L\ Near\text{-}Failure_t$
S&L Near-Failure Experience /Age	Discounted (by age) sum of the number of all FDIC-insured S&Ls that have experienced near-failure since the founding of a focal bank	$\sum_{t_F}^{t-1}\frac{Total\ Number\ of\ S\&L\ Near\text{-}Failure_t}{Age}$
S&L Near-Failure Experience /Age^2	Discounted (by age^2) sum of the number of all FDIC-insured S&Ls that have experienced near-failure since the founding of a focal bank	$\sum_{t_F}^{t-1}\frac{Total\ Number\ of\ S\&L\ Near\text{-}Failure_t}{Age^2}$
S&L Near-Failure Experience /$\sqrt{age}$	Discounted (by $\sqrt{age}$) sum of the number of all FDIC-insured S&Ls that have experienced near-failure since the founding of a focal bank	$\sum_{t_F}^{t-1}\frac{Total\ Number\ of\ S\&L\ Near\text{-}Failure_t}{\sqrt{Age}}$
S&L Near-Failure Experience /Regulation	Sum of the number of all FDIC-insured commercial banks that have experienced near-failure since the latest regulatory change	$\sum_{t_R}^{t-1} Total\ Number\ of\ S\&L\ Near\text{-}Failure_t$
S&L Near-Failure Experience /Regulation + Age	Discounted (by age) sum of the number of all FDIC-insured S&Ls that experienced near-failure between the founding of a focal bank and the latest regulatory change plus sum of the number of all FDIC-insured S&Ls that have experienced near-failure since the latest regulatory change	$\sum_{t_F}^{t_R-1}\frac{Total\ Number\ of\ S\&L\ Near\text{-}Failure_t}{Age} + \sum_{t_R}^{t-1} Total\ Number\ of\ S\&L\ Near\text{-}Failure_t$
CB Local and Nonlocal Failure and Near-Failure Experience		
CB Local Failure Experience /No Discount	Sum of the number of all local FDIC-insured commercial banks (banks that are located in the same FDIC region in which a focal bank is located) that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1} Total\ Number\ of\ Local\ CB\ Failure_t$
CB Local Failure Experience /Age	Discounted (by age) sum of the number of all local FDIC-insured commercial banks that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1}\frac{Total\ Number\ of\ Local\ CB\ Failure_t}{Age}$

CB Local Failure Experience /Age²	**Discounted (by age²) sum of the number of all local FDIC-insured commercial banks that have failed since the founding of a focal bank**	$\sum_{t_f}^{t-1} \frac{Total\ Number\ of\ Local\ CB\ Failure_t}{Age^2}$
CB Local Failure Experience /Regulation Age	**Discounted (by age) sum of the number of all local FDIC-insured commercial banks that failed between the founding of a focal bank and the latest regulatory change plus sum of the number of all local FDIC-insured commercial banks that have failed since the latest regulatory change**	$\sum_{t_f}^{t_R-1} \frac{Total\ Number\ of\ Local\ CB\ Failure_t}{Age} + \sum_{t_R}^{t-1} Total\ Number\ of\ Local\ CB\ Failure_t$
CB Local Near-Failure Experience /No Discount	**Sum of the number of all local FDIC-insured commercial banks that have experienced near-failure since the founding of a focal bank**	$\sum_{t_R}^{t-1} Total\ Number\ of\ Local\ CB\ Near\text{–}Failure_t$
CB Local Near-Failure Experience /Age	**Discounted (by age) sum of the number of all local FDIC-insured commercial banks that have experience near-failure since the founding of a focal bank**	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Local\ CB\ Near\text{–}Failure_t}{Age}$
CB Local Near-Failure Experience /Age²	**Discounted (by age²) sum of the number of all local FDIC-insured commercial banks that have experienced near-failure since the founding of a focal bank**	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Local\ CB\ Near\text{–}Failure_t}{Age^2}$
CB Local Near-Failure Experience /Regulation + Age	**Discounted (by age) sum of the number of all local FDIC-insured commercial banks that experienced near-failure between the founding of a focal bank and the latest regulatory change plus sum of the number of all local FDIC-insured commercial banks that have experienced near-failure since the latest regulatory change**	$\sum_{t_f}^{t_R-1} \frac{Total\ Number\ of\ Local\ CB\ Near\text{–}Failure_t}{Age} + \sum_{t_R}^{t-1} Total\ Number\ of\ Local\ CB\ Near\text{–}Failure_t$
CB Nonlocal Failure Experience /No Discount	**Sum of the number of all nonlocal FDIC-insured commercial banks (banks that are NOT located in the same FDIC region in which a focal bank is located) that have failed since the founding of a focal bank**	$\sum_{t_F}^{t-1} Total\ Number\ of\ Nonlocal\ CB\ Failure_t$
CB Nonlocal Failure Experience /Age	**Discounted (by age) sum of the number of all nonlocal FDIC-insured commercial banks that have failed since the founding of a focal bank**	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Nonlocal\ CB\ Failure_t}{Age}$
CB Nonlocal Failure Experience /Age²	**Discounted (by age²) sum of the number of all nonlocal FDIC-insured commercial banks that have failed since the founding of a focal bank**	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Nonlocal\ CB\ Failure_t}{Age^2}$

CB Nonlocal Failure Experience /Regulation + Age	Discounted (by age) sum of the number of all nonlocal FDIC-insured commercial banks that failed between the founding of a focal bank and the latest regulatory change plus sum of the number of all nonlocal FDIC-insured commercial banks that have failed since the latest regulatory change	$\sum_{t_F}^{t_R-1} \frac{Total\ Number\ of\ Nonlocal\ CB\ Failure_t}{Age} + \sum_{t_R}^{t-1} Total\ Number\ of\ Nonlocal\ CB\ Failure_t$
CB Nonlocal Near-Failure Experience /No Discount	Sum of the number of all nonlocal FDIC-insured commercial banks that have experienced near-failure since the founding of a focal bank	$\sum_{t_F}^{t-1} Total\ Number\ of\ Nonlocal\ CB\ Near\text{–}Failure_t$
CB Nonlocal Near-Failure Experience /Age	Discounted (by age) sum of the number of all nonlocal FDIC-insured commercial banks that have experience near-failure since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Nonlocal\ CB\ Near\text{–}Failure_t}{Age}$
CB Nonlocal Near-Failure Experience /Age^2	Discounted (by age^2) sum of the number of all nonlocal FDIC-insured commercial banks that have experienced near-failure since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Nonlocal\ CB\ Near\text{–}Failure_t}{Age^2}$
CB Nonlocal Near-Failure Experience /Regulation + Age	Discounted (by age) sum of the number of all nonlocal FDIC-insured commercial banks that experienced near-failure between the founding of a focal bank and the latest regulatory change plus sum of the number of all nonlocal FDIC-insured commercial banks that have experienced near-failure since the latest regulatory change	$\sum_{t_F}^{t_R-1} \frac{Total\ Number\ of\ Nonlocal\ CB\ Near\text{–}Failure_t}{Age} + \sum_{t_R}^{t-1} Total\ Number\ of\ Nonlocal\ CB\ Near\text{–}Failure_t$

S&L Local and Nonlocal Failure and Near-Failure Experience		
S&L Local Failure Experience /No Discount	Sum of the number of all local FDIC-insured S&Ls (S&Ls that are located in the same FDIC region in which a focal bank is located) that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1} Total\ Number\ of\ Local\ S\&L\ Failure_t$
S&L Local Failure Experience /Age	Discounted (by age) sum of the number of all local FDIC-insured S&Ls that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Local\ S\&L\ Failure_t}{Age}$
S&L Local Failure Experience /Age^2	Discounted (by age^2) sum of the number of all local FDIC-insured S&Ls that have failed since the founding of a focal bank	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Local\ S\&L\ Failure_t}{Age^2}$

S&L Local Failure Experience /Regulation + Age	**Discounted (by age) sum of the number of all local FDIC-insured S&Ls that failed between the founding of a focal bank and the latest regulatory change plus sum of the number of all local FDIC-insured S&Ls that have failed since the latest regulatory change**	$\sum_{t_F}^{t_R-1} \frac{Total\ Number\ of\ Local\ S\&L\ Failure_t}{Age} + \sum_{t_R}^{t-1} Total\ Number\ of\ Local\ S\&L\ Failure_t$
S&L Local Near-Failure Experience /No Discount	**Sum of the number of all local FDIC-insured S&Ls that have experienced near-failure since the founding of a focal bank**	$\sum_{t_R}^{t-1} Total\ Number\ of\ Local\ S\&L\ Near\text{-}Failure_t$
S&L Local Near-Failure Experience /Age	**Discounted (by age) sum of the number of all local FDIC-insured S&Ls that have experienced near-failure since the founding of a focal bank**	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Local\ S\&L\ Near\text{-}Failure_t}{Age}$
S&L Local Near-Failure Experience /Age^2	**Discounted (by age^2) sum of the number of all local FDIC-insured S&Ls that have experienced near-failure since the founding of a focal bank**	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Local\ S\&L\ Near\text{-}Failure_t}{Age^2}$
S&L Local Near-Failure Experience /Regulation + Age	**Discounted (by age) sum of the number of all local FDIC-insured S&Ls that experienced near-failure between the founding of a focal bank and the latest regulatory change plus sum of the number of all local FDIC-insured S&Ls that have experienced near-failure since the latest regulatory change**	$\sum_{t_F}^{t_R-1} \frac{Total\ Number\ of\ Local\ S\&L\ Near\text{-}Failure_t}{Age} + \sum_{t_R}^{t-1} Total\ Number\ of\ Local\ S\&L\ Near\text{-}Failure_t$
S&L Nonlocal Failure Experience /No Discount	**Sum of the number of all nonlocal FDIC-insured S&Ls (S&Ls that are NOT located in the same FDIC region in which a focal bank is located) that have failed since the founding of a focal bank**	$\sum_{t_F}^{t-1} Total\ Number\ of\ Nonlocal\ S\&L\ Failure_t$
S&L Nonlocal Failure Experience /Age	**Discounted (by age) sum of the number of all nonlocal FDIC-insured S&Ls that have failed since the founding of a focal bank**	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Nonlocal\ S\&L\ Failure_t}{Age}$
S&L Nonlocal Failure Experience /Age^2	**Discounted (by age^2) sum of the number of all nonlocal FDIC-insured S&Ls that have failed since the founding of a focal bank**	$\sum_{t_F}^{t-1} \frac{Total\ Number\ of\ Nonlocal\ S\&L\ Failure_t}{Age^2}$
S&L Nonlocal Failure Experience /Regulation + Age	**Discounted (by age) sum of the number of all nonlocal FDIC-insured S&Ls that failed between the founding of a focal bank and the latest regulatory change plus sum of the number of all nonlocal FDIC-insured S&Ls that have failed since the latest regulatory change**	$\sum_{t_F}^{t_R-1} \frac{Total\ Number\ of\ Nonlocal\ S\&L\ Failure_t}{Age} + \sum_{t_R}^{t-1} Total\ Number\ of\ Nonlocal\ S\&L\ Failure_t$

S&L Nonlocal Near-Failure Experience /No Discount	**Sum of the number of all nonlocal FDIC-insured S&Ls that have experienced near-failure since the founding of a focal bank**	$\sum_{t_R}^{t-1} \textit{Total Number of Nonlocal S\&L Near–Failure}_t$
S&L Nonlocal Near-Failure Experience /Age	**Discounted (by age) sum of the number of all nonlocal FDIC-insured S&Ls that have experienced near-failure since the founding of a focal bank**	$\sum_{t_F}^{t-1} \frac{\textit{Total Number of Nonlocal S\&L Near–Failure}_t}{\textit{Age}}$
S&L Nonlocal Near-Failure Experience /Age^2	**Discounted (by age^2) sum of the number of all nonlocal FDIC-insured S&Ls that have experienced near-failure since the founding of a focal bank**	$\sum_{t_F}^{t-1} \frac{\textit{Total Number of Nonlocal S\&L Near–Failure}_t}{\textit{Age}^2}$
S&L Nonlocal Near-Failure Experience /Regulation + Age	**Discounted (by age) sum of the number of all nonlocal FDIC-insured S&Ls that experienced near-failure between the founding of a focal bank and the latest regulatory change plus sum of the number of all nonlocal FDIC-insured S&Ls that have experienced near-failure since the latest regulatory change**	$\sum_{t_F}^{t_R-1} \frac{\textit{Total Number of Nonlocal S\&L Near–Failure}_t}{\textit{Age}} + \sum_{t_R}^{t-1} \textit{Total Number of Nonlocal S\&L Near–Failure}_t$

END OF TABLE 3-1

TABLE 3-2
Summary of All Control Variables

Variable Name	Description	Function/Note
Organizational Level Controls		
Age	Age of a focal bank (in month)	
Age²	Squared age	Age^2
Ln(Total Asset)	Natural logarithm of the total asset of a focal bank	$\log(Total\ Assets)$
Federal Charter	Indicator of federal chartered commercial banks or state chartered commercial banks	Federal chartered = 1; State chartered = 0
Capital Asset Ratio	Equity capital as a percent of total asset	$Equity\ Capital / Total\ Assets$
Nonperforming Loan/Total Loan	Nonperforming loans as a percent of total loans	$Nonperforming\ Loan / Total\ Loan$
Socio-Economic Controls		
Unemployment Rate	Average unemployment rate of the state in which a focal bank is located	Measured at the state level
Dow Jones	Dow Jones Industrial Index	Quarterly data
Personal Income	Personal income of the state in which a focal bank is located	Measured at the state level; in thousand of dollars
Bank Prime Loan Rate	Bank prime loan rate	Quarterly data
Non-Residential Construction	Total number of non-residential construction certificates	
NCREIF Index	An index of the quarterly total returns to the commercial real estate properties held for tax exempt institutional investors	Calculated for 4 regions (East, Midwest, South and West)
Population Level Density Controls		
CB Density	Total number of all FDIC-insured commercial banks in the state in which a focal bank is located	Measured at the state level
S&L Density	Total number of all FDIC-insured S&Ls and savings bank in the state in which a focal bank is located	Measured at the state level
CU Density	Total number of credit unions in the state in which a focal bank is located	Measured at the state level
CB Density²	Squared CB Density	$CB\ Density^2$
S&L Density²	Squared S&L Density	$S\&L\ Density^2$
CU Density²	Squared CU Density	$CU\ Density^2$

Founding CB Density	**Total number of all FDIC-insured commercial banks in the state in which a focal bank is located at the time of its founding**	**Measured at the state level**
Founding S&L Density	**Total number of all FDIC-insured S&Ls and savings banks in the state in which a focal bank is located at the time of its founding**	**Measured at the state level**
Founding CU Density	**Total number of credit unions in the state in which a focal bank is located at the time of its founding**	**Measured at the state level**
Controls for Alternative Arguments		
CB Mass Density	**Total assets of all FDIC-insured commercial banks in the state in which a focal bank is located**	**Measured at the state level; in thousand of dollars**
S&L Mass Density	**Total assets of all FDIC-insured S&Ls in the state in which a focal bank is located**	**Measured at the state level; in thousand of dollars**
Regulation Interval	**Average interval between examinations by three major regulatory agents including FDIC, Federal Reserve and State**	**In days**
# of FDIC Enforcement	**The number of FDIC formal enforcement actions during a give year**	
CB Employee Release	**Total number of employees of all failed FDIC-insured commercial banks in the state in which a focal bank is located (lagged by one year)**	**Measured at the state level; in thousand of dollars**
CB Deposit Release	**Total amount of deposits of all failed FDIC-insured commercial banks in the state in which a focal bank is located (lagged by one year)**	**Measured at the state level; in thousand of dollars**
S&L Deposit Release	**Total amount of deposits of all failed FDIC-insured S&Ls in the state in which a focal bank is located (lagged by one year)**	**Measured at the state level; in thousand of dollars**
Congenital Industry Failure and Operating Experience		
Congenital Failure Experience /No Discount	**Sum of the number of all FDIC-insured commercial banks that failed between the founding year of FDIC (=1934) and a year before a focal bank was founded**	$\sum_{t_{1934}}^{t_F-1} \textit{Total Number of CB Failure}_t$
Congenital Failure Experience /Age	**Discounted (by age) sum of the number of all FDIC-insured commercial banks that failed between 1934 and a year before a focal bank was founded**	$\sum_{t_{1934}}^{t_F-1} \frac{\textit{Total Number of CB Failure}_t}{Age}$
Congenital Failure Experience /Age^2	**Discounted (by age^2) sum of the number of all FDIC-insured commercial banks that failed between 1934 and a year before a focal bank was founded**	$\sum_{t_{1934}}^{t_F-1} \frac{\textit{Total Number of CB Failure}_t}{Age^2}$

Congenital Failure Experience **$/\sqrt{Age}$**	**Discounted (by $\sqrt{age}$) sum of the number of all FDIC-insured commercial banks that failed between 1934 and a year before a focal bank was founded**	$\sum_{t_{1934}}^{t_F-1} \frac{Total\ Number\ of\ CB\ Failure_t}{\sqrt{Age}}$
Congenital Failure Experience /Regulation	**Sum of the number of all FDIC-insured commercial banks that failed between a year before a focal bank was founded and the last regulatory change before its founding**	$\sum_{t_{RL}/t_F}^{t_F-1} Total\ Number\ of\ CB\ Failure_t$
Congenital Failure Experience /Regulation + Age	**Discounted (by age) sum of the number of all FDIC-insured commercial banks that failed between 1934 and the last regulatory change before a focal bank was founded plus sum of the number of all FDIC-insured commercial banks that failed between the late regulatory change before its founding and a year before its founding**	$\sum_{t_{1934}}^{t_{RL}/t_F-1} \frac{Total\ Number\ of\ CB\ Failure_t}{Age} + \sum_{t_{RL}/t_F}^{t-1} Total\ Number\ of\ CB\ Failure_t$
Congenital Operating Experience /No Discount	**Sum of the total assets of all FDIC-insured commercial banks that failed between 1934 and a year before a focal bank was founded**	$\sum_{t_{1934}}^{t_F-1} Total\ Assets\ of\ CB_t$
Congenital Operating Experience /Age	**Discounted (by age) sum of the total assets of all FDIC-insured commercial banks that failed between 1934 and a year before a focal bank was founded**	$\sum_{t_{1934}}^{t_F-1} \frac{Total\ Assets\ of\ CB_t}{Age}$
Congenital Operating Experience /Age^2	**Discounted (by age^2) sum of the total assets of all FDIC-insured commercial banks that failed between 1934 and a year before a focal bank was founded**	$\sum_{t_{1934}}^{t_F-1} \frac{Total\ Assets\ of\ CB_t}{Age^2}$
Congenital Operating Experience **$/\sqrt{Age}$**	**Discounted (by $\sqrt{age}$) sum of the total assets of all FDIC-insured commercial banks that failed between 1934 and a year before a focal bank was founded**	$\sum_{t_{1934}}^{t_F-1} \frac{Total\ Assets\ of\ CB_t}{\sqrt{Age}}$
Congenital Operating Experience /Regulation	**Sum of the total assets of all FDIC-insured commercial banks that failed since the last regulatory change before a focal bank was founded**	$\sum_{t_{RL}/t_F}^{t_F-1} Total\ Assets\ of\ CB_t$
Congenital Operating Experience /Regulation + Age	**Discounted (by age) sum of the total assets of all FDIC-insured commercial banks that failed between 1934 and the last regulatory change before a focal bank was founded plus sum of the total assets of all FDIC-insured commercial banks that failed between the last regulatory change and a year before its founding**	$\sum_{t_{1934}}^{t_{RL}/t_F-1} \frac{Total\ Assets\ of\ CB_t}{Age} + \sum_{t_{RL}/t_F}^{t-1} Total\ Assets\ of\ CB_t$

Note: All dollar amounts are in thousand of dollars, but some figures are divided by 1000 in the analyses to avoid 0 coefficients.

TABLE 4-1
Summary of Statistical Analysis Results

	Summary of Hypothesis	Exponential Model	Piecewise Model
Hypothesis 1a	CB failure experience will produce survival-enhancing (SE) learning	Not Supported	Not Supported
Hypothesis 1b	S&L failure experience will produce SE learning	Supported	Supported
Hypothesis 2a	CB near-failure experience will produce SE learning	Partially Supported	Partially Supported
Hypothesis 2b	S&L near-failure experience will produce SE learning	Partially Supported	Partially Supported
Hypothesis 3a	SE learning from CB near-failure experience > SE learning from CB failure experience	Supported	Supported
Hypothesis 3b	SE learning from S&L near-failure experience < SE learning S&L failure experience	Supported	Supported
Hypothesis 4a	SE learning from nonlocal CB failure experience > SE learning from local CB failure experience	Not Supported	Not Supported
Hypothesis 4a *(Alternative)*	SE learning from nonlocal S&L failure experience < SE learning from local S&L failure experience	Not Supported	Not Supported
Hypothesis 4b	SE learning from nonlocal CB near-failure experience > SE learning from local CB near-failure experience	Not Supported	Not supported
Hypothesis 4b *(Alternative)*	SE learning from nonlocal S&L near-failure experience < SE learning from local S&L near-failure experience	Partially Supported	Partially Supported
Hypothesis 4c	SE learning from nonlocal S&L failure experience > SE learning from local S&L failure experience	Not Supported	Not Supported
Hypothesis 4c *(Alternative)*	SE learning from nonlocal S&L failure experience < SE learning from local S&L failure experience	Partially Supported	Partially Supported
Hypothesis 4d	SE learning from nonlocal S&L near-failure experience > SE learning from local S&L near-failure experience	Not Supported	Not Supported
Hypothesis 4d *(Alternative)*	SE learning from nonlocal S&L near-failure experience < SE learning from local S&L near-failure experience	Supported	Supported

TABLE 4-2
Summary of Results:
Intrapopulation and Interpopulation Survival-Enhancing Learning

	INDUSTRY FAILURE EXPERIENCE	INDUSTRY NEAR-FAILURE EXPERIENCE
SAME INDUSTRY (COMMERCIAL BANKS)	– →	(+) Stronger Effect
COMPETING INDUSTRY (S&Ls)	+ ← Stronger Effect	(+)

Note: + represents the decrease in the failure rates of banks (survival-enhancing learning).
– represents the increase in the failure rates of banks (no survival-enhancing learning).
(Symbols) in parenthesis represent partial support of the claim.

TABLE 4-3
Summary of Results:
Survival-Enhancing Learning from Local and Nonlocal Experience

	INDUSTRY FAILURE EXPERIENCE		INDUSTRY NEAR-FAILURE EXPERIENCE	
	Same Industry (Banks)	Competing Industry (S&Ls)	Same Industry (Banks)	Competing Industry (S&Ls)
LOCAL	–	(+) ↑ Stronger Effect	(+)	+ ↑ Stronger Effect
NONLOCAL	–	+	No Effect	(+)

Note: + represents the decrease in the failure rates of banks (survival-enhancing learning).
– represents the increase in the failure rates of banks (no survival-enhancing learning).
(Symbols) in parenthesis represent partial support of the claim.
"No Effect" means that the results were not statistically significant for most model specifications.

TABLE 5
Descriptive Statistics and Bivariate Correlations

1	Age	58.40	42.15	1.00	180.00	1.0000				
2	Age^2	5186.81	6306.90	1.00	32400.00	0.9552	1.0000			
3	log (Total Asset)	10.64	1.21	5.13	19.22	0.3846	0.3233	1.0000		
4	Federal Charter	0.39	0.49	0.00	1.00	0.0080	0.0184	-0.0344	1.0000	
5	Capital Asset Ratio	-9.14	306.56	N/A	441.00	0.0320	0.0219	0.0062	-0.0008	1.0000
6	Nonperforming Loan/Total Loan	-134.89	1153.61	N/A	9.54	0.0776	0.0592	0.1485	-0.0578	0.2522
7	CB Density	469.24	451.63	1.00	1972.00	-0.1400	-0.1233	-0.2341	0.2603	0.0002
8	S&L Density	81.21	69.52	0.00	281.00	-0.3057	-0.2790	-0.1501	0.1242	-0.0175
9	CU Density	455.64	334.29	0.00	1430.00	-0.0832	-0.0709	-0.0908	0.1806	-0.0042
10	CB $Density^2/1000$	424.15	829.58	0.00	3888.78	-0.1844	-0.1584	-0.2112	0.2454	0.0002
11	S&L $Density^2/1000$	11.43	18.69	0.00	78.96	-0.3116	-0.2724	-0.1713	0.1475	-0.0133
12	CU $Density^2/1000$	319.35	389.13	0.00	2044.90	-0.1190	-0.1025	-0.1135	0.2059	-0.0036
13	CB Mass Density	139.53	154.97	0.00	1143.65	0.1305	0.1339	0.1391	0.0317	0.0018
14	S&L Mass Density	55.07	78.46	0.00	372.94	-0.0149	-0.0069	-0.0195	0.0855	-0.0058
15	Unemployment Rate	5.94	1.59	0.00	21.80	-0.1406	-0.1724	-0.1407	0.1366	0.0014
16	Dow Jones Index	4041.09	2170.83	1132.40	9181.43	0.5101	0.5491	0.3350	-0.1113	0.0251
17	Personal Income	20.14	4.32	9.54	37.70	0.4680	0.4528	0.3945	-0.1607	0.0252
18	Bank Prime Loan Rate	8.42	1.45	6.00	12.97	-0.2459	-0.1832	-0.1709	0.0608	-0.0224
19	Nonresidential Construction/10^6	131.36	16.23	105.62	156.35	-0.2167	-0.1017	-0.1493	0.0656	-0.0228
20	NCREIF Index	1.46	1.80	-6.37	6.54	0.1473	0.2313	0.0774	-0.0234	-0.0108
21	Regulation Interval	404.76	83.48	320.00	609.00	-0.5636	-0.5070	-0.3834	0.1501	-0.0416
22	# of FDIC Enforcement	133.76	60.34	62.00	272.00	-0.5173	-0.5202	-0.3379	0.1124	-0.0238
23	Founding CB Density	578.75	590.41	1.00	1972.00	0.0468	0.0535	-0.1718	0.2679	0.0043
24	Founding S&L Density	119.37	87.95	0.00	281.00	0.1012	0.0967	-0.0470	0.1821	-0.0035
25	Founding CU Density	543.09	393.47	0.00	1430.00	0.0878	0.0905	-0.0211	0.1798	0.0014
26	CB Employee Release	643.75	1948.90	0.00	10656.00	0.0076	-0.0453	-0.0441	0.1371	-0.0003
27	CB Deposit Release/1000	1.13	4.47	0.00	32.75	-0.0255	-0.0662	-0.0532	0.1187	-0.0041
28	S&L Deposit Release/1000	2.51	6.38	0.00	38.69	-0.0618	-0.1164	-0.0617	0.1154	-0.0017
29	Congenital Failure Exp/No Discount	1124.83	477.75	665.00	2125.00	-0.3387	-0.3274	0.0904	-0.1724	0.0124
30	Congenital Failure Exp/Age	260.09	148.58	90.72	514.68	-0.1955	-0.2386	0.1402	-0.2039	0.0112
31	Congenital Failure Exp/Age^2	163.73	99.97	22.59	359.74	-0.0831	-0.1451	0.1339	-0.1881	0.0075
32	Congenital Failure Exp/SQRT(Age)	440.14	230.53	184.49	833.28	-0.2807	-0.2993	0.1255	-0.1988	0.0128

TABLE 5 (Continued)

33	Congenital Failure Exp/Regulation	186.77	129.51	11.00	481.00	-0.0404	-0.0959	0.1132	-0.1684	0.0031
34	Congenital Failure Exp/Regulation+Age	295.02	168.94	108.22	605.83	-0.1825	-0.2274	0.1413	-0.2084	0.0101
35	Congenital Operationg Exp/No Discount	19433.74	6574.34	13363.35	43328.49	-0.3548	-0.3234	0.0545	-0.1612	0.0096
36	Congenital Operating Exp/Age	4728.69	1178.25	3466.10	8777.65	-0.3497	-0.3276	0.0679	-0.1842	0.0097
37	Congenital Operating Exp/Age^2	2577.80	536.07	1952.11	4457.19	-0.3431	-0.3247	0.0694	-0.1962	0.0091
38	Congenital Operating Exp/SQRT(Age)	8474.03	2461.93	6021.74	17080.05	-0.3531	-0.3266	0.0623	-0.1728	0.0098
39	Congenital Operating Exp/Regulation	3012.63	1442.31	1527.54	10765.17	-0.1993	-0.1677	-0.0103	-0.1111	0.0001
40	Congenital Operating Exp/Regulation+Age	5404.26	1609.87	3872.78	13698.57	-0.3195	-0.2889	0.0366	-0.1713	0.0060
41	CB Failure Exp/No Discount	626.83	477.90	0.00	1460.00	0.8863	0.8046	0.2905	0.0237	0.0297
42	CB Failure Exp/Age	223.58	147.53	0.00	485.77	0.2897	0.1249	0.0725	0.0549	0.0247
43	CB Failure Exp/Age^2	133.67	108.58	0.00	356.79	-0.1334	-0.2650	-0.0855	0.0640	0.0141
44	CB Failure Exp/SQRT(Age)	348.33	226.66	0.00	709.25	0.6499	0.5063	0.2044	0.0406	0.0300
45	CB Failure Exp/Regulation	149.86	138.79	0.00	481.00	-0.1432	-0.2620	-0.0772	0.0590	0.0096
46	CB Failure Exp/Regulation+Age	254.41	171.28	0.00	574.30	0.2758	0.1064	0.0742	0.0538	0.0234
47	CB Near Failure Exp/No Discount	5255.15	3897.85	0.00	14484.00	0.9835	0.9245	0.3617	0.0158	0.0319
48	CB Near Failure Exp/Age	2057.46	953.82	0.00	3661.87	0.7524	0.5767	0.3132	0.0267	0.0442
49	CB Near Failure Exp/Age^2	1299.80	540.30	0.00	2133.46	0.3199	0.1233	0.1601	0.0391	0.0451
50	CB Near Failure Exp/SQRT(Age)	3066.86	1747.86	0.00	6024.31	0.9208	0.7992	0.3583	0.0195	0.0385
51	CB Near Failure Exp/Regulation	1707.70	1001.76	0.00	3831.00	0.3817	0.2642	0.2041	0.0117	0.0318
52	CB Near Failure Exp/Regulation+Age	2493.87	1249.93	0.00	5095.87	0.7606	0.6049	0.3332	0.0157	0.0409
53	S&L Failure Exp/No Discount	553.96	442.35	0.00	1209.00	0.8700	0.7829	0.3274	-0.0334	0.0325
54	S&L Failure Exp/Age	201.56	159.12	0.00	491.61	0.3147	0.1565	0.1212	-0.0104	0.0283
55	S&L Failure Exp/Age^2	121.13	122.77	0.00	389.22	-0.0413	-0.1720	-0.0188	0.0065	0.0189
56	S&L Failure Exp/SQRT(Age)	311.23	228.24	0.00	689.43	0.6375	0.4945	0.2437	-0.0238	0.0332
57	S&L Failure Exp/Regulation	142.15	157.31	0.00	551.00	-0.0428	-0.1730	-0.0111	0.0025	0.0173
58	S&L Failure Exp/Regulation+Age	233.11	190.24	0.00	655.61	0.3011	0.1383	0.1213	-0.0124	0.0276
59	S&L Near Failure Exp/No Discount	1226.68	912.86	0.00	3294.00	0.9596	0.9094	0.3593	0.0063	0.0305
60	S&L Near Failure Exp/Age	478.49	247.17	0.00	964.40	0.7281	0.5698	0.3135	0.0152	0.0384
61	S&L Near Failure Exp/Age^2	304.08	158.48	0.00	641.92	0.3202	0.1583	0.1648	0.0204	0.0348
62	S&L Near Failure Exp/SQRT(Age)	709.15	426.09	0.00	1440.76	0.9090	0.7947	0.3636	0.0125	0.0356
63	S&L Near Failure Exp/Regulation	491.54	351.71	0.00	1314.00	0.4182	0.3090	0.2240	-0.0183	0.0255
64	S&L Near Failure Exp/Regulation+Age	602.57	346.29	0.00	1360.26	0.6349	0.5026	0.2748	0.0269	0.0330
65	CB Local Failure Exp/No Discount	115.50	205.05	0.00	778.00	0.4306	0.4022	-0.0081	0.1941	0.0123

TABLE 5 (Continued)

66	CB Nonlocal Failure Exp/No Discount	511.33	414.83	0.00	1424.00	0.8083	0.7282	0.3386	-0.0686	0.0282
67	CB Local Failure Exp/Age	42.20	73.57	0.00	316.47	0.1563	0.0841	-0.1030	0.2120	0.0081
68	CB Nonlocal Failure Exp/Age	181.38	130.26	0.00	484.43	0.2399	0.0940	0.1403	-0.0576	0.0234
69	CB Local Failure Exp/Age^2	25.76	51.05	0.00	246.42	-0.0112	-0.0827	-0.1448	0.1964	0.0041
70	CB Nonlocal Faliure Exp/Age^2	107.90	95.00	0.00	356.54	-0.1464	-0.2584	-0.0199	-0.0324	0.0139
71	CB Local Failure Exp/Regulation+Age	47.45	82.46	0.00	390.26	0.1515	0.0762	-0.0999	0.2087	0.0077
72	CB Nonlocal Failure Exp/Regulation+Age	206.97	150.89	0.00	573.30	0.2302	0.0792	0.1388	-0.0530	0.0223
73	CB Local Near Failure Exp/No Discount	684.01	707.49	0.00	4018.00	0.7507	0.7203	0.1520	0.0722	0.0239
74	CB Nonlocal Near Failure Exp/No Discount	4571.13	3387.44	0.00	14153.00	0.9749	0.9134	0.3845	0.0031	0.0317
75	CB Local Near Failure/Age	270.37	208.53	0.00	952.97	0.5198	0.4189	0.0593	0.1006	0.0292
76	CB Nonlocal Near Failure/Age	1787.09	833.58	0.00	3600.63	0.7310	0.5551	0.3436	0.0054	0.0433
77	CB Local Near Failure/Age^2	171.68	125.44	0.00	580.50	0.2562	0.1406	-0.0355	0.1122	0.0291
78	CB Nonlocal Near Failure/Age^2	1124.19	483.59	0.00	2098.17	0.2996	0.1077	0.1896	0.0168	0.0426
79	CB Local Near Failure/Regulation+Age	328.10	260.67	0.00	1275.25	0.5459	0.4540	0.0871	0.0920	0.0285
80	CB Nonlocal Near Failure/Regulation+Age	2165.76	1092.15	0.00	5000.32	0.7402	0.5840	0.3605	-0.0040	0.0400
81	S&L Local Failure/No Discount	83.42	87.88	0.00	314.00	0.7095	0.6443	0.1710	0.0978	0.0244
82	S&L Nonlocal Failure Exp/No Discount	467.95	378.40	0.00	1142.00	0.8595	0.7710	0.3461	-0.0600	0.0324
83	S&L Local Failure Exp/Age	30.65	34.14	0.00	175.27	0.2562	0.1326	0.0102	0.1082	0.0182
84	S&L Nonlocal Failure Exp/Age	170.91	135.87	0.00	475.55	0.3041	0.1499	0.1394	-0.0394	0.0286
85	S&L Local Failure Exp/Age^2	18.52	26.43	0.00	144.32	-0.0039	-0.1115	-0.0727	0.0963	0.0108
86	S&L Nonlocal Failure Exp/Age^2	102.61	104.93	0.00	386.04	-0.0473	-0.1731	-0.0037	-0.0167	0.0194
87	S&L Local Failure Exp/Regaulation+Age	35.21	39.44	0.00	204.80	0.2499	0.1196	0.0190	0.0979	0.0187
88	S&L Nonlocal Failure Exp/Regulation+Age	197.91	162.64	0.00	638.05	0.2916	0.1327	0.1373	-0.0383	0.0278
89	S&L Local Near Failure Exp/No Discount	137.92	130.51	0.00	803.00	0.7510	0.6923	0.4036	-0.1117	0.0239
90	S&L Nonlocal Near Failure Exp/No Discount	1068.28	821.59	0.00	3086.00	0.9735	0.9202	0.3463	0.0313	0.0302
91	S&L Local Near Failure/Age	54.97	39.98	0.00	234.03	0.4873	0.3694	0.3545	-0.1414	0.0261
92	S&L Nonlocal Near Failure Exp/Age	423.54	222.08	0.00	910.99	0.7227	0.5676	0.2851	0.0424	0.0381
93	S&L Local Near Failure Exp/Age^2	34.97	26.00	0.00	143.97	0.2035	0.0904	0.2403	-0.1331	0.0228
94	S&L Nonlocal Near Failure/Age^2	268.15	143.85	0.00	605.61	0.3232	0.1634	0.1396	0.0481	0.0340
95	S&L Local Near Failure/Regualtion+Age	66.89	52.12	0.00	305.51	0.4970	0.3869	0.3567	-0.1380	0.0247
96	S&L Nonlocal Near Failure/Regualtion+Age	511.39	299.69	0.00	1266.84	0.7058	0.5689	0.2964	0.0230	0.0344

TABLE 5 (Continued)

6	Nonperforming Loan/Total Loan	1.0000								
7	CB Density	0.0370	1.0000							
8	S&L Density	-0.0171	0.6406	1.0000						
9	CU Density	0.0094	0.7077	0.7545	1.0000					
10	CB Density^2/1000	0.0307	0.9512	0.6803	0.6424	1.0000				
11	S&L Density^2/1000	-0.0163	0.6858	0.9513	0.6720	0.7764	1.0000			
12	CU Density^2/1000	0.0126	0.7329	0.7593	0.9775	0.6984	0.7193	1.0000		
13	CB Mass Density	0.0080	0.1715	0.3788	0.5823	0.1374	0.2637	0.5192	1.0000	
14	S&L Mass Density	-0.0069	0.2099	0.4751	0.6443	0.1575	0.3741	0.6154	0.6393	1.0000
15	Unemployment Rate	0.0266	0.3499	0.3530	0.4107	0.3511	0.3255	0.3986	0.2085	0.3004
16	Dow Jones Index	0.0017	-0.2913	-0.4028	-0.2406	-0.2875	-0.3668	-0.2682	0.0916	-0.1255
17	Personal Income	0.0024	-0.3799	-0.2435	-0.1160	-0.3794	-0.3033	-0.1856	0.3003	0.0916
18	Bank Prime Loan Rate	-0.0206	0.1232	0.1869	0.1141	0.1291	0.1726	0.1378	-0.0198	0.0796
19	Nonresidential Construction/10^6	-0.0282	0.1491	0.2155	0.1045	0.1848	0.2432	0.1335	0.0034	0.0854
20	NCREIF Index	-0.0218	-0.1099	-0.1211	-0.0830	-0.0919	-0.0861	-0.0753	0.0471	-0.0213
21	Regulation Interval	-0.0228	0.3920	0.5345	0.2868	0.4357	0.5558	0.3353	-0.0660	0.1632
22	# of FDIC Enforcement	-0.0089	0.2953	0.3949	0.2345	0.3014	0.3777	0.2668	-0.0851	0.1199
23	Founding CB Density	0.0461	0.9297	0.4693	0.6920	0.8312	0.4851	0.6952	0.1729	0.1609
24	Founding S&L Density	0.0188	0.7072	0.7468	0.8667	0.6362	0.6421	0.8251	0.4858	0.5031
25	Founding CU Density	0.0193	0.6544	0.6758	0.9757	0.5705	0.5773	0.9349	0.6223	0.6589
26	CB Employee Release	0.0237	0.3757	0.0864	0.3261	0.2861	0.0141	0.3173	0.0708	0.0525
27	CB Deposit Release/1000	0.0149	0.3444	0.0929	0.2958	0.2764	0.0287	0.2994	0.0530	0.0416
28	S&L Deposit Release/1000	0.0177	0.3239	0.1760	0.3940	0.2393	0.0787	0.3877	0.1671	0.2988
29	Congenital Failure Exp/No Discount	-0.0572	-0.2881	-0.2643	-0.2465	-0.2640	-0.2491	-0.2604	-0.0353	-0.1602
30	Congenital Failure Exp/Age	-0.0187	-0.2938	-0.2090	-0.2168	-0.2765	-0.2279	-0.2430	-0.0306	-0.1397
31	Congenital Failure Exp/Age^2	0.0074	-0.2452	-0.1405	-0.1632	-0.2346	-0.1755	-0.1918	-0.0226	-0.1062
32	Congenital Failure Exp/SQRT(Age)	-0.0400	-0.3081	-0.2502	-0.2447	-0.2863	-0.2524	-0.2660	-0.0350	-0.1580
33	Congenital Failure Exp/Regulation	0.0052	-0.1975	-0.0873	-0.1228	-0.1891	-0.1232	-0.1488	-0.0091	-0.0743
34	Congenital Failure Exp/Regulation+Age	-0.0185	-0.2900	-0.1958	-0.2105	-0.2730	-0.2173	-0.2375	-0.0266	-0.1328
35	Congenital Operationg Exp/No Discount	-0.0638	-0.2665	-0.2587	-0.2378	-0.2425	-0.2369	-0.2486	-0.0330	-0.1580
36	Congenital Operating Exp/Age	-0.0611	-0.2888	-0.2665	-0.2497	-0.2648	-0.2510	-0.2646	-0.0344	-0.1664
37	Congenital Operating Exp/Age^2	-0.0591	-0.2974	-0.2676	-0.2535	-0.2738	-0.2560	-0.2707	-0.0348	-0.1696
38	Congenital Operating Exp/SQRT(Age)	-0.0626	-0.2784	-0.2633	-0.2444	-0.2543	-0.2446	-0.2572	-0.0338	-0.1626

TABLE 5 (Continued)

39	Congenital Operating Exp/Regulation	-0.0473	-0.1453	-0.1193	-0.1191	-0.1306	-0.1104	-0.1268	0.0067	-0.0624
40	Congenital Operating Exp/Regulation+Age	-0.0616	-0.2533	-0.2261	-0.2159	-0.2309	-0.2116	-0.2290	-0.0184	-0.1351
41	CB Failure Exp/No Discount	0.0835	-0.0898	-0.2502	-0.0359	-0.1560	-0.2865	-0.0735	0.0951	0.0002
42	CB Failure Exp/Age	0.0735	0.0457	-0.0165	0.0719	-0.0268	-0.0925	0.0508	-0.0056	0.0627
43	CB Failure Exp/Age^2	0.0469	0.1232	0.1451	0.1240	0.0713	0.0716	0.1201	-0.0578	0.0931
44	CB Failure Exp/SQRT(Age)	0.0861	-0.0292	-0.1547	0.0154	-0.1059	-0.2166	-0.0173	0.0491	0.0301
45	CB Failure Exp/Regulation	0.0398	0.1169	0.1468	0.1105	0.0790	0.0913	0.1095	-0.0522	0.0811
46	CB Failure Exp/Regulation+Age	0.0717	0.0458	-0.0126	0.0689	-0.0230	-0.0839	0.0489	-0.0065	0.0594
47	CB Near Failure Exp/No Discount	0.0799	-0.1267	-0.2937	-0.0722	-0.1771	-0.3068	-0.1088	0.1219	-0.0108
48	CB Near Failure Exp/Age	0.1001	-0.0665	-0.1945	-0.0261	-0.1276	-0.2352	-0.0596	0.0709	0.0133
49	CB Near Failure Exp/Age^2	0.0935	0.0256	-0.0241	0.0368	-0.0250	-0.0739	0.0172	0.0049	0.0420
50	CB Near Failure Exp/SQRT(Age)	0.0920	-0.1079	-0.2652	-0.0567	-0.1658	-0.2923	-0.0937	0.1036	-0.0023
51	CB Near Failure Exp/Regulation	0.0650	-0.0239	-0.0659	-0.0148	-0.0435	-0.0733	-0.0302	0.0362	0.0117
52	CB Near Failure Exp/Regulation+Age	0.0913	-0.0820	-0.2012	-0.0441	-0.1307	-0.2263	-0.0756	0.0796	0.0041
53	S&L Failure Exp/No Discount	0.0858	-0.1622	-0.3044	-0.0924	-0.2182	-0.3380	-0.1355	0.0938	-0.0475
54	S&L Failure Exp/Age	0.0702	-0.0624	-0.1383	-0.0114	-0.1300	-0.2096	-0.0424	-0.0032	-0.0108
55	S&L Failure Exp/Age^2	0.0450	0.0067	-0.0118	0.0376	-0.0492	-0.0844	0.0209	-0.0485	0.0180
56	S&L Failure Exp/SQRT(Age)	0.0847	-0.1214	-0.2413	-0.0568	-0.1890	-0.2987	-0.0971	0.0473	-0.0335
57	S&L Failure Exp/Regulation	0.0403	0.0006	-0.0138	0.0275	-0.0478	-0.0759	0.0120	-0.0460	0.0092
58	S&L Failure Exp/Regulation+Age	0.0677	-0.0639	-0.1370	-0.0153	-0.1284	-0.2043	-0.0456	-0.0047	-0.0151
59	S&L Near Failure Exp/No Discount	0.0742	-0.1374	-0.2946	-0.0796	-0.1867	-0.3083	-0.1172	0.1180	-0.0155
60	S&L Near Failure Exp/Age	0.0857	-0.0777	-0.1920	-0.0426	-0.1299	-0.2199	-0.0754	0.0701	0.0043
61	S&L Near Failure Exp/Age^2	0.0723	0.0030	-0.0336	0.0072	-0.0334	-0.0593	-0.0121	0.0107	0.0240
62	S&L Near Failure Exp/SQRT(Age)	0.0825	-0.1166	-0.2673	-0.0679	-0.1698	-0.2878	-0.1047	0.1028	-0.0085
63	S&L Near Failure Exp/Regulation	0.0553	-0.0742	-0.1213	-0.0512	-0.0971	-0.1310	-0.0732	0.0376	-0.0136
64	S&L Near Failure Exp/Regulation+Age	0.0753	-0.0352	-0.1201	-0.0222	-0.0667	-0.1251	-0.0453	0.0671	0.0154
65	CB Local Failure Exp/No Discount	0.0533	0.3110	-0.1659	0.2170	0.1831	-0.1609	0.2083	0.0060	-0.0330
66	CB Nonlocal Failure Exp/No Discount	0.0699	-0.2572	-0.2062	-0.1486	-0.2702	-0.2505	-0.1876	0.1066	0.0165
67	CB Local Failure Exp/Age	0.0509	0.4188	-0.0422	0.2759	0.3055	-0.0506	0.2883	-0.0171	-0.0058
68	CB Nonlocal Failure Exp/Age	0.0545	-0.1847	0.0052	-0.0744	-0.2029	-0.0762	-0.1053	0.0033	0.0743
69	CB Local Failure Exp/Age^2	0.0426	0.4309	0.0475	0.2752	0.3443	0.0351	0.2989	-0.0262	0.0153
70	CB Nonlocal Failure Exp/Age^2	0.0307	-0.0907	0.1404	-0.0061	-0.1035	0.0630	-0.0233	-0.0520	0.0982
71	CB Local Failure Exp/Regulation+Age	0.0507	0.4106	-0.0413	0.2701	0.3002	-0.0491	0.2827	-0.0166	-0.0043

TABLE 5 (Continued)

[redacted]										
72	CB Nonlocal Failure Exp/Regulation+Age	0.0537	-0.1724	0.0082	-0.0694	-0.1901	-0.0684	-0.0990	0.0017	0.0697
73	CB Local Near Failure Exp/No Discount	0.0685	0.0991	-0.2863	-0.0362	-0.0178	-0.2617	-0.0539	-0.0456	-0.1118
74	CB Nonlocal Near Failure Exp/No Discount	0.0777	-0.1665	-0.2781	-0.0755	-0.2000	-0.2984	-0.1139	0.1497	0.0110
75	CB Local Near Failure/Age	0.0798	0.2333	-0.2176	0.0113	0.0919	-0.1967	0.0022	-0.1021	-0.1311
76	CB Nonlocal Near Failure/Age	0.0946	-0.1344	-0.1681	-0.0327	-0.1690	-0.2199	-0.0687	0.1067	0.0480
77	CB Local Near Failure/Age^2	0.0768	0.3137	-0.1187	0.0514	0.1775	-0.0993	0.0520	-0.1314	-0.1231
78	CB Nonlocal Near Failure/Age^2	0.0845	-0.0488	0.0088	0.0317	-0.0708	-0.0529	0.0095	0.0388	0.0809
79	CB Local Near Failure/Regulation+Age	0.0755	0.2107	-0.2218	-0.0031	0.0793	-0.1938	-0.0130	-0.0917	-0.1357
80	CB Nonlocal Near Failure/Regulation+Age	0.0865	-0.1441	-0.1773	-0.0497	-0.1685	-0.2128	-0.0834	0.1130	0.0371
81	S&L Local Failure/No Discount	0.0758	0.0938	-0.2848	0.0979	-0.0178	-0.3026	0.0661	0.0697	-0.0216
82	S&L Nonlocal Failure Exp/No Discount	0.0825	-0.2103	-0.2914	-0.1309	-0.2495	-0.3254	-0.1736	0.0945	-0.0506
83	S&L Local Failure Exp/Age	0.0637	0.1795	-0.1434	0.1525	0.0724	-0.1932	0.1411	0.0045	-0.0030
84	S&L Nonlocal Failure Exp/Age	0.0662	-0.1182	-0.1260	-0.0517	-0.1704	-0.1969	-0.0851	-0.0049	-0.0119
85	S&L Local Failure Exp/Age^2	0.0447	0.1921	-0.0402	0.1550	0.1089	-0.0953	0.1564	-0.0252	0.0141
86	S&L Nonlocal Failure Exp/Age^2	0.0414	-0.0405	-0.0037	0.0050	-0.0850	-0.0747	-0.0150	-0.0504	0.0175
87	S&L Local Failure Exp/Regaulation+Age	0.0628	0.1582	-0.1439	0.1364	0.0568	-0.1931	0.1241	0.0054	-0.0071
88	S&L Nonlocal Failure Exp/Regulation+Age	0.0639	-0.1131	-0.1253	-0.0510	-0.1640	-0.1921	-0.0834	-0.0068	-0.0160
89	S&L Local Near Failure Exp/No Discount	0.0554	-0.2592	-0.1673	-0.1512	-0.2600	-0.2166	-0.2056	0.1464	-0.1426
90	S&L Nonlocal Near Failure Exp/No Discount	0.0729	-0.1074	-0.3069	-0.0647	-0.1610	-0.3103	-0.0970	0.1118	0.0050
91	S&L Local Near Failure/Age	0.0491	-0.2761	-0.0758	-0.1323	-0.2770	-0.1552	-0.1963	0.1180	-0.1433
92	S&L Nonlocal Near Failure Exp/Age	0.0865	-0.0368	-0.2001	-0.0236	-0.0947	-0.2168	-0.0486	0.0568	0.0306
93	S&L Local Near Failure Exp/Age^2	0.0355	-0.2318	0.0093	-0.0904	-0.2308	-0.0734	-0.1485	0.0759	-0.1165
94	S&L Nonlocal Near Failure/Age^2	0.0732	0.0482	-0.0342	0.0278	0.0074	-0.0487	0.0169	-0.0020	0.0496
95	S&L Local Near Failure/Regualtion+Age	0.0455	-0.2695	-0.0913	-0.1341	-0.2676	-0.1597	-0.1944	0.1210	-0.1315
96	S&L Nonlocal Near Failure/Regualtion+Age	0.0774	-0.0643	-0.2140	-0.0463	-0.1124	-0.2233	-0.0711	0.0610	0.0124

[redacted]						
15	Unemployment Rate	1.0000				
16	Dow Jones Index	-0.4365	1.0000			
17	Personal Income	-0.3461	0.7286	1.0000		
18	Bank Prime Loan Rate	-0.2067	-0.1850	-0.2463	1.0000	
19	Nonresidential Construction/10^6	-0.2586	0.1002	-0.1552	0.7310	1.0000

TABLE 5 (Continued)

20	NCREIF Index	-0.3766	0.4688	0.2552	0.2947	0.4472	1.0000			
21	Regulation Interval	0.3231	-0.7269	-0.7326	0.3380	0.4230	-0.0999	1.0000		
22	# of FDIC Enforcement	0.4500	-0.7957	-0.6734	0.0534	-0.0088	-0.4855	0.7068	1.0000	
23	Founding CB Density	0.2902	-0.1739	-0.2719	0.0732	0.0815	-0.0771	0.2247	0.1687	1.0000
24	Founding S&L Density	0.3753	-0.2058	-0.0670	0.0718	0.0500	-0.1023	0.2156	0.1829	0.7599
25	Founding CU Density	0.3982	-0.1549	-0.0189	0.0577	0.0470	-0.0661	0.1754	0.1438	0.6840
26	CB Employee Release	0.2132	-0.1701	-0.1539	0.0753	-0.0138	-0.1436	0.0497	0.1277	0.4805
27	CB Deposit Release/1000	0.1560	-0.1490	-0.1553	0.1624	0.0764	-0.0928	0.0837	0.1110	0.4192
28	S&L Deposit Release/1000	0.2452	-0.2270	-0.1440	0.1596	0.0430	-0.2463	0.0996	0.2116	0.3628
29	Congenital Failure Exp/No Discount	-0.2734	0.4846	0.4245	-0.1713	-0.1040	0.1425	-0.4808	-0.4296	-0.3079
30	Congenital Failure Exp/Age	-0.1509	0.2395	0.3255	-0.1880	-0.2477	-0.0468	-0.4032	-0.2656	-0.3008
31	Congenital Failure Exp/Age^2	-0.0636	0.0691	0.2135	-0.1530	-0.2638	-0.1342	-0.2848	-0.1276	-0.2430
32	Congenital Failure Exp/SQRT(Age)	-0.2212	0.3782	0.3958	-0.1933	-0.1934	0.0459	-0.4682	-0.3663	-0.3224
33	Congenital Failure Exp/Regulation	-0.0498	0.0171	0.1496	-0.1051	-0.2114	-0.1221	-0.2041	-0.0774	-0.1899
34	Congenital Failure Exp/Regulation+Age	-0.1489	0.2209	0.3127	-0.1788	-0.2449	-0.0516	-0.3879	-0.2523	-0.2948
35	Congenital Operationg Exp/No Discount	-0.3014	0.5301	0.4225	-0.1391	-0.0251	0.1996	-0.4605	-0.4431	-0.2849
36	Congenital Operating Exp/Age	-0.2997	0.5182	0.4334	-0.1542	-0.0565	0.1738	-0.4780	-0.4403	-0.3041
37	Congenital Operating Exp/Age^2	-0.2979	0.5096	0.4345	-0.1582	-0.0649	0.1612	-0.4800	-0.4327	-0.3097
38	Congenital Operating Exp/SQRT(Age)	-0.3009	0.5248	0.4290	-0.1475	-0.0424	0.1866	-0.4708	-0.4431	-0.2955
39	Congenital Operating Exp/Regulation	-0.1930	0.3154	0.2322	-0.0406	0.0487	0.1485	-0.2366	-0.2384	-0.1517
40	Congenital Operating Exp/Regulation+Age	-0.2864	0.4838	0.3883	-0.1149	-0.0075	0.1861	-0.4167	-0.3954	-0.2669
41	CB Failure Exp/No Discount	0.0070	0.1767	0.2697	-0.2496	-0.3730	-0.1072	-0.4418	-0.2484	0.0908
42	CB Failure Exp/Age	0.1933	-0.4027	-0.1801	-0.0110	-0.2679	-0.4479	0.0042	0.3008	0.1233
43	CB Failure Exp/Age^2	0.2124	-0.5972	-0.3971	0.2004	-0.0240	-0.4555	0.3054	0.5181	0.1171
44	CB Failure Exp/SQRT(Age)	0.1165	-0.1237	0.0570	-0.1658	-0.3827	-0.3153	-0.2570	0.0246	0.1138
45	CB Failure Exp/Regulation	0.2000	-0.5329	-0.3601	0.1427	-0.0791	-0.3795	0.3097	0.4490	0.0991
46	CB Failure Exp/Regulation+Age	0.1999	-0.4013	-0.1779	-0.0382	-0.3064	-0.4401	0.0109	0.2903	0.1174
47	CB Near Failure Exp/No Discount	-0.0894	0.4058	0.4141	-0.2724	-0.2934	0.0882	-0.5331	-0.4612	0.0598
48	CB Near Failure Exp/Age	0.0971	0.0384	0.1904	-0.3458	-0.4708	-0.1860	-0.3544	-0.1709	0.0789
49	CB Near Failure Exp/Age^2	0.2498	-0.3136	-0.0935	-0.3198	-0.4557	-0.3705	-0.0401	0.1795	0.0876
50	CB Near Failure Exp/SQRT(Age)	-0.0093	0.2560	0.3340	-0.3177	-0.3954	-0.0360	-0.4831	-0.3541	0.0685
51	CB Near Failure Exp/Regulation	0.0784	0.0458	0.1027	-0.3295	-0.2880	-0.0499	-0.1228	-0.0911	0.0330
52	CB Near Failure Exp/Regulation+Age	0.0410	0.1604	0.2552	-0.3626	-0.4141	-0.0715	-0.3723	-0.2614	0.0572

TABLE 5 (Continued)

[redacted]									
53 S&L Failure Exp/No Discount	0.0044	0.2536	0.3658	-0.3779	-0.4976	-0.1284	-0.5578	-0.3028	0.0145
54 S&L Failure Exp/Age	0.2053	-0.2662	-0.0181	-0.2365	-0.4881	-0.5534	-0.2311	0.2464	0.0272
55 S&L Failure Exp/Age^2	0.2112	-0.4347	-0.2073	-0.0047	-0.2382	-0.5926	0.0148	0.4453	0.0305
56 S&L Failure Exp/SQRT(Age)	0.1307	-0.0229	0.1839	-0.3634	-0.5742	-0.3886	-0.4324	-0.0197	0.0224
57 S&L Failure Exp/Regulation	0.2110	-0.4158	-0.1872	-0.0747	-0.3376	-0.5594	0.0002	0.4055	0.0191
58 S&L Failure Exp/Regulation+Age	0.2166	-0.2734	-0.0169	-0.2833	-0.5536	-0.5525	-0.2349	0.2419	0.0213
59 S&L Near Failure Exp/No Discount	-0.1226	0.4215	0.4233	-0.2415	-0.2645	0.1358	-0.5286	-0.4994	0.0502
60 S&L Near Failure Exp/Age	0.0857	0.1023	0.2236	-0.4636	-0.5241	-0.0972	-0.3635	-0.2507	0.0647
61 S&L Near Failure Exp/Age^2	0.2462	-0.1795	-0.0196	-0.5485	-0.5651	-0.2542	-0.0804	0.0642	0.0633
62 S&L Near Failure Exp/SQRT(Age)	-0.0290	0.2977	0.3582	-0.3674	-0.4133	0.0295	-0.4927	-0.4174	0.0608
63 S&L Near Failure Exp/Regulation	0.0587	0.1045	0.1746	-0.4514	-0.4127	-0.0157	-0.2331	-0.1745	0.0027
64 S&L Near Failure Exp/Regulation+Age	0.0852	0.1176	0.1832	-0.4457	-0.4193	-0.0137	-0.2326	-0.2537	0.0707
65 CB Local Failure Exp/No Discount	0.0419	0.0452	-0.0219	-0.0842	-0.1466	-0.0500	-0.1656	-0.0750	0.5741
66 CB Nonlocal Failure Exp/No Discount	-0.0126	0.1812	0.3215	-0.2459	-0.3573	-0.0988	-0.4271	-0.2491	-0.1792
67 CB Local Failure Exp/Age	0.1558	-0.1841	-0.2169	0.0544	-0.0524	-0.1691	0.0403	0.1431	0.5856
68 CB Nonlocal Failure Exp/Age	0.1309	-0.3521	-0.0815	-0.0432	-0.2739	-0.4118	-0.0180	0.2599	-0.1911
69 CB Local Failure Exp/Age^2	0.1903	-0.2678	-0.2947	0.1543	0.0536	-0.1829	0.1642	0.2271	0.5189
70 CB Nonlocal Failure Exp/Age^2	0.1406	-0.5388	-0.2956	0.1461	-0.0563	-0.4225	0.2610	0.4702	-0.1450
71 CB Local Failure Exp/Regulation+Age	0.1582	-0.1874	-0.2157	0.0483	-0.0661	-0.1705	0.0443	0.1464	0.5721
72 CB Nonlocal Failure Exp/Regulation+Age	0.1405	-0.3531	-0.0841	-0.0698	-0.3116	-0.4064	-0.0118	0.2496	-0.1794
73 CB Local Near Failure Exp/No Discount	-0.1878	0.2950	0.1778	-0.1960	-0.2080	0.0715	-0.3822	-0.3354	0.2995
74 CB Nonlocal Near Failure Exp/No Discount	-0.0637	0.4053	0.4394	-0.2725	-0.2942	0.0866	-0.5336	-0.4607	0.0063
75 CB Local Near Failure/Age	-0.0785	0.0299	-0.0385	-0.2175	-0.2898	-0.0798	-0.2178	-0.1159	0.3904
76 CB Nonlocal Near Failure/Age	0.1308	0.0365	0.2274	-0.3412	-0.4662	-0.1929	-0.3511	-0.1665	-0.0073
77 CB Local Near Failure/Age^2	0.0197	-0.1713	-0.2084	-0.2016	-0.2768	-0.1653	-0.0325	0.0847	0.4087
78 CB Nonlocal Near Failure/Age^2	0.2821	-0.3234	-0.0597	-0.3044	-0.4457	-0.3815	-0.0281	0.1883	-0.0038
79 CB Local Near Failure/Regulation+Age	-0.1077	0.1079	0.0138	-0.2379	-0.2668	-0.0154	-0.2389	-0.1770	0.3665
80 CB Nonlocal Near Failure/Regulation+Age	0.0726	0.1578	0.2887	-0.3582	-0.4102	-0.0781	-0.3691	-0.2569	-0.0221
81 S&L Local Failure/No Discount	0.0520	0.1789	0.1768	-0.2742	-0.3719	-0.0919	-0.4183	-0.2170	0.3512
82 S&L Nonlocal Failure Exp/No Discount	-0.0038	0.2596	0.3898	-0.3897	-0.5022	-0.1297	-0.5600	-0.3061	-0.0626
83 S&L Local Failure Exp/Age	0.2003	-0.2050	-0.1149	-0.1089	-0.3004	-0.3715	-0.1457	0.1784	0.3300
84 S&L Nonlocal Failure Exp/Age	0.1901	-0.2602	0.0076	-0.2495	-0.4961	-0.5547	-0.2340	0.2438	-0.0511
85 S&L Local Failure Exp/Age^2	0.2053	-0.3192	-0.2294	0.0658	-0.1127	-0.3932	0.0294	0.3065	0.2632

TABLE 5 (Continued)

86 S&L Nonlocal Failure Exp/Age^2	0.1954	-0.4282	-0.1848	-0.0221	-0.2502	-0.5942	0.0099	0.4438	-0.0306
87 S&L Local Failure Exp/Regaulation+Age	0.2077	-0.2143	-0.1056	-0.1510	-0.3614	-0.3832	-0.1558	0.1837	0.3002
88 S&L Nonlocal Failure Exp/Regulation+Age	0.2030	-0.2678	0.0058	-0.2948	-0.5599	-0.5534	-0.2370	0.2384	-0.0478
89 S&L Local Near Failure Exp/No Discount	-0.1564	0.3895	0.4716	-0.2431	-0.2420	0.1220	-0.4718	-0.4445	-0.1823
90 S&L Nonlocal Near Failure Exp/No Discount	-0.1000	0.4238	0.4074	-0.2723	-0.2809	0.1281	-0.5309	-0.4936	0.0921
91 S&L Local Near Failure/Age	-0.0244	0.1317	0.3391	-0.3743	-0.4162	-0.0447	-0.3321	-0.2362	-0.2381
92 S&L Nonlocal Near Failure Exp/Age	0.0997	0.0902	0.1878	-0.4485	-0.5084	-0.1002	-0.3450	-0.2365	0.1149
93 S&L Local Near Failure Exp/Age^2	0.0842	-0.0652	0.1730	-0.4364	-0.4535	-0.1514	-0.1464	-0.0152	-0.2308
94 S&L Nonlocal Near Failure/Age^2	0.2629	-0.2005	-0.0603	-0.5248	-0.5475	-0.2614	-0.0554	0.0817	0.1150
95 S&L Local Near Failure/Regualtion+Age	-0.0535	0.1915	0.3717	-0.3763	-0.3934	0.0211	-0.3565	-0.2957	-0.2288
96 S&L Nonlocal Near Failure/Regualtion+Age	0.0409	0.1739	0.2443	-0.4389	-0.4656	-0.0052	-0.3739	-0.3147	0.0804

24 Founding S&L Density	1.0000								
25 Founding CU Density	0.8907	1.0000							
26 CB Employee Release	0.3997	0.3277	1.0000						
27 CB Deposit Release/1000	0.3407	0.2849	0.9106	1.0000					
28 S&L Deposit Release/1000	0.3967	0.3843	0.7634	0.8219	1.0000				
29 Congenital Failure Exp/No Discount	-0.3746	-0.2965	-0.1602	-0.1381	-0.1634	1.0000			
30 Congenital Failure Exp/Age	-0.2723	-0.2502	-0.1266	-0.1166	-0.1111	0.7558	1.0000		
31 Congenital Failure Exp/Age^2	-0.1625	-0.1812	-0.0824	-0.0813	-0.0604	0.4681	0.9282	1.0000	
32 Congenital Failure Exp/SQRT(Age)	-0.3427	-0.2887	-0.1523	-0.1353	-0.1453	0.9320	0.9410	0.7502	1.0000
33 Congenital Failure Exp/Regulation	-0.0871	-0.1322	-0.0494	-0.0532	-0.0357	0.2981	0.7190	0.8206	0.5454
34 Congenital Failure Exp/Regulation+Age	-0.2517	-0.2414	-0.1189	-0.1106	-0.1051	0.7152	0.9728	0.9161	0.9046
35 Congenital Operationg Exp/No Discount	-0.3639	-0.2887	-0.1514	-0.1286	-0.1623	0.9572	0.5708	0.2598	0.8032
36 Congenital Operating Exp/Age	-0.3664	-0.3009	-0.1541	-0.1325	-0.1624	0.9700	0.6588	0.3727	0.8577
37 Congenital Operating Exp/Age^2	-0.3609	-0.3043	-0.1521	-0.1316	-0.1593	0.9565	0.6835	0.4179	0.8628
38 Congenital Operating Exp/SQRT(Age)	-0.3666	-0.2956	-0.1535	-0.1311	-0.1630	0.9678	0.6192	0.3192	0.8352
39 Congenital Operating Exp/Regulation	-0.1599	-0.1431	-0.0676	-0.0585	-0.0802	0.4521	0.1772	0.0273	0.3198
40 Congenital Operating Exp/Regulation+Age	-0.3098	-0.2600	-0.1310	-0.1127	-0.1427	0.8310	0.4905	0.2342	0.6897
41 CB Failure Exp/No Discount	0.1704	0.1259	0.1315	0.0720	0.0891	-0.5456	-0.3521	-0.1691	-0.4768
42 CB Failure Exp/Age	0.1999	0.1387	0.3267	0.2793	0.3883	-0.5845	-0.3503	-0.1449	-0.4960

TABLE 5 (Continued)

43	CB Failure Exp/Age^2	0.1695	0.1151	0.3293	0.3180	0.4377	-0.4635	-0.2727	-0.1083	-0.3905
44	CB Failure Exp/SQRT(Age)	0.1996	0.1422	0.2522	0.1893	0.2595	-0.6113	-0.3774	-0.1663	-0.5249
45	CB Failure Exp/Regulation	0.1401	0.0979	0.2681	0.2737	0.3604	-0.3749	-0.2077	-0.0723	-0.3081
46	CB Failure Exp/Regulation+Age	0.1905	0.1334	0.3153	0.2707	0.3721	-0.5554	-0.3252	-0.1283	-0.4668
47	CB Near Failure Exp/No Discount	0.1199	0.1007	0.0355	-0.0063	-0.0356	-0.4060	-0.2358	-0.1001	-0.3378
48	CB Near Failure Exp/Age	0.1504	0.1156	0.1626	0.1026	0.1194	-0.4667	-0.2088	-0.0346	-0.3531
49	CB Near Failure Exp/Age^2	0.1478	0.1081	0.2180	0.1619	0.2128	-0.4224	-0.1628	0.0017	-0.3045
50	CB Near Failure Exp/SQRT(Age)	0.1367	0.1095	0.0975	0.0449	0.0359	-0.4449	-0.2262	-0.0678	-0.3520
51	CB Near Failure Exp/Regulation	0.0696	0.0558	0.0783	0.0450	0.0330	-0.1990	-0.0232	0.0639	-0.1114
52	CB Near Failure Exp/Regulation+Age	0.1202	0.0949	0.1165	0.0625	0.0560	-0.3761	-0.1400	0.0058	-0.2677
53	S&L Failure Exp/No Discount	0.1102	0.0659	0.0709	0.0005	0.0185	-0.3835	-0.1212	0.0624	-0.2686
54	S&L Failure Exp/Age	0.1137	0.0623	0.2643	0.1763	0.3244	-0.3693	-0.1007	0.0816	-0.2499
55	S&L Failure Exp/Age^2	0.0921	0.0487	0.3002	0.2368	0.4192	-0.2846	-0.0754	0.0657	-0.1913
56	S&L Failure Exp/SQRT(Age)	0.1208	0.0690	0.1849	0.0948	0.1853	-0.4060	-0.1186	0.0790	-0.2790
57	S&L Failure Exp/Regulation	0.0739	0.0378	0.2352	0.1696	0.3374	-0.2297	-0.0339	0.0889	-0.1395
58	S&L Failure Exp/Regulation+Age	0.1043	0.0565	0.2392	0.1461	0.2894	-0.3407	-0.0784	0.0945	-0.2225
59	S&L Near Failure Exp/No Discount	0.1073	0.0872	0.0231	-0.0107	-0.0567	-0.3662	-0.1901	-0.0613	-0.2919
60	S&L Near Failure Exp/Age	0.1215	0.0927	0.1041	0.0480	0.0193	-0.3725	-0.1453	-0.0039	-0.2688
61	S&L Near Failure Exp/Age^2	0.1047	0.0759	0.1155	0.0575	0.0490	-0.2904	-0.0879	0.0285	-0.1948
62	S&L Near Failure Exp/SQRT(Age)	0.1184	0.0942	0.0666	0.0190	-0.0204	-0.3837	-0.1799	-0.0422	-0.2942
63	S&L Near Failure Exp/Regulation	0.0417	0.0266	0.0546	0.0111	-0.0291	-0.1269	0.0484	0.1234	-0.0358
64	S&L Near Failure Exp/Regulation+Age	0.1128	0.0926	0.0632	0.0106	-0.0325	-0.3298	-0.1371	-0.0184	-0.2416
65	CB Local Failure Exp/No Discount	0.3544	0.2949	0.3929	0.2971	0.2312	-0.3299	-0.2934	-0.2165	-0.3309
66	CB Nonlocal Failure Exp/No Discount	0.0211	-0.0007	-0.0427	-0.0639	-0.0116	-0.4655	-0.2606	-0.0878	-0.3857
67	CB Local Failure Exp/Age	0.3605	0.3021	0.6324	0.5827	0.5244	-0.3260	-0.2871	-0.2105	-0.3254
68	CB Nonlocal Failure Exp/Age	0.0228	-0.0136	0.0128	-0.0128	0.1436	-0.4779	-0.2346	-0.0452	-0.3781
69	CB Local Failure Exp/Age^2	0.3190	0.2687	0.6751	0.6780	0.6229	-0.2846	-0.2506	-0.1840	-0.2839
70	CB Nonlocal Failure Exp/Age^2	0.0224	-0.0128	0.0136	-0.0008	0.1656	-0.3770	-0.1770	-0.0248	-0.2938
71	CB Local Failure Exp/Regulation+Age	0.3527	0.2960	0.6316	0.5829	0.5187	-0.3208	-0.2806	-0.2049	-0.3190
72	CB Nonlocal Failure Exp/Regulation+Age	0.0235	-0.0104	0.0128	-0.0113	0.1389	-0.4551	-0.2158	-0.0337	-0.3556
73	CB Local Near Failure Exp/No Discount	0.1143	0.0827	0.0800	0.0309	-0.0260	-0.3426	-0.2484	-0.1529	-0.3117
74	CB Nonlocal Near Failure Exp/No Discount	0.1141	0.0986	0.0242	-0.0137	-0.0355	-0.3956	-0.2195	-0.0832	-0.3236
75	CB Local Near Failure/Age	0.1375	0.0952	0.2046	0.1361	0.0837	-0.3515	-0.2371	-0.1352	-0.3093

TABLE 5 (Continued)

[redacted]									
76 CB Nonlocal Near Failure/Age	0.1378	0.1084	0.1349	0.0834	0.1156	-0.4461	-0.1796	-0.0057	-0.3266
77 CB Local Near Failure/Age^2	0.1369	0.0935	0.2624	0.1926	0.1448	-0.3143	-0.2110	-0.1210	-0.2756
78 CB Nonlocal Near Failure/Age^2	0.1369	0.1014	0.1782	0.1329	0.2034	-0.4074	-0.1244	0.0439	-0.2752
79 CB Local Near Failure/Regulation+Age	0.1217	0.0833	0.1834	0.1066	0.0409	-0.3082	-0.1986	-0.1088	-0.2654
80 CB Nonlocal Near Failure/Regulation+Age	0.1085	0.0888	0.0895	0.0461	0.0544	-0.3569	-0.1128	0.0326	-0.2430
81 S&L Local Failure/No Discount	0.2839	0.2308	0.2993	0.1925	0.1821	-0.3609	-0.1971	-0.0599	-0.2967
82 S&L Nonlocal Failure Exp/No Discount	0.0635	0.0246	0.0131	-0.0455	-0.0222	-0.3656	-0.1008	0.0803	-0.2483
83 S&L Local Failure Exp/Age	0.2613	0.2076	0.5836	0.5057	0.5716	-0.3259	-0.1665	-0.0383	-0.2616
84 S&L Nonlocal Failure Exp/Age	0.0675	0.0208	0.1629	0.0794	0.2363	-0.3506	-0.0761	0.1052	-0.2269
85 S&L Local Failure Exp/Age^2	0.2047	0.1615	0.6288	0.6012	0.6856	-0.2524	-0.1279	-0.0284	-0.2020
86 S&L Nonlocal Failure Exp/Age^2	0.0562	0.0163	0.1928	0.1256	0.3178	-0.2694	-0.0560	0.0840	-0.1730
87 S&L Local Failure Exp/Regaulation+Age	0.2432	0.1914	0.5337	0.4514	0.5195	-0.3080	-0.1449	-0.0191	-0.2405
88 S&L Nonlocal Failure Exp/Regulation+Age	0.0630	0.0197	0.1503	0.0614	0.2125	-0.3238	-0.0566	0.1152	-0.2020
89 S&L Local Near Failure Exp/No Discount	-0.0003	-0.0216	-0.1185	-0.1220	-0.1683	-0.2073	-0.0364	0.0633	-0.1267
90 S&L Nonlocal Near Failure Exp/No Discount	0.1215	0.1045	0.0434	0.0023	-0.0420	-0.3783	-0.2234	-0.1020	-0.3158
91 S&L Local Near Failure/Age	-0.0107	-0.0366	-0.1188	-0.1396	-0.1653	-0.1428	0.0674	0.1664	-0.0360
92 S&L Nonlocal Near Failure Exp/Age	0.1372	0.1098	0.1373	0.0787	0.0513	-0.3890	-0.1739	-0.0343	-0.2927
93 S&L Local Near Failure Exp/Age^2	-0.0155	-0.0385	-0.0999	-0.1328	-0.1388	-0.0808	0.1065	0.1850	0.0176
94 S&L Nonlocal Near Failure/Age^2	0.1245	0.0950	0.1476	0.0891	0.0818	-0.3196	-0.1138	0.0069	-0.2233
95 S&L Local Near Failure/Regualtion+Age	-0.0178	-0.0384	-0.1293	-0.1450	-0.1783	-0.0922	0.1059	0.1889	0.0118
96 S&L Nonlocal Near Failure/Regualtion+Age	0.1015	0.0816	0.1077	0.0501	0.0040	-0.2936	-0.0967	0.0170	-0.2009
[redacted]									
33 Congenital Failure Exp/Regulation	1.0000								
34 Congenital Failure Exp/Regulation+Age	0.8410	1.0000							
35 Congenital Operationg Exp/No Discount	0.1362	0.5345	1.0000						
36 Congenital Operating Exp/Age	0.2338	0.6236	0.9913	1.0000					
37 Congenital Operating Exp/Age^2	0.2754	0.6496	0.9768	0.9956	1.0000				
38 Congenital Operating Exp/SQRT(Age)	0.1870	0.5833	0.9978	0.9977	0.9877	1.0000			
39 Congenital Operating Exp/Regulation	0.3746	0.3203	0.5614	0.5535	0.5571	0.5558	1.0000		
40 Congenital Operating Exp/Regulation+Age	0.3215	0.5402	0.9035	0.9037	0.9022	0.9040	0.8549	1.0000	
41 CB Failure Exp/No Discount	-0.0807	-0.3261	-0.5301	-0.5216	-0.5039	-0.5284	-0.2453	-0.4482	1.0000

TABLE 5 (Continued)

[redacted]										
42	CB Failure Exp/Age	-0.0550	-0.3222	-0.5769	-0.5629	-0.5417	-0.5726	-0.2705	-0.4870	0.6345
43	CB Failure Exp/Age^2	-0.0381	-0.2504	-0.4601	-0.4484	-0.4316	-0.4563	-0.2170	-0.3888	0.2180
44	CB Failure Exp/SQRT(Age)	-0.0703	-0.3481	-0.5994	-0.5866	-0.5652	-0.5959	-0.2794	-0.5061	0.9055
45	CB Failure Exp/Regulation	-0.0062	-0.1848	-0.3817	-0.3713	-0.3584	-0.3780	-0.1717	-0.3186	0.1488
46	CB Failure Exp/Regulation+Age	-0.0395	-0.2964	-0.5531	-0.5391	-0.5190	-0.5486	-0.2563	-0.4653	0.6110
47	CB Near Failure Exp/No Discount	-0.0493	-0.2205	-0.4213	-0.4143	-0.4048	-0.4190	-0.2290	-0.3748	0.9371
48	CB Near Failure Exp/Age	0.0121	-0.1903	-0.5105	-0.4915	-0.4769	-0.5021	-0.2988	-0.4596	0.8742
49	CB Near Failure Exp/Age^2	0.0387	-0.1458	-0.4751	-0.4538	-0.4398	-0.4651	-0.2917	-0.4331	0.5549
50	CB Near Failure Exp/SQRT(Age)	-0.0181	-0.2089	-0.4748	-0.4613	-0.4487	-0.4692	-0.2679	-0.4244	0.9505
51	CB Near Failure Exp/Regulation	0.0841	-0.0089	-0.2584	-0.2424	-0.2376	-0.2498	-0.1686	-0.2386	0.3992
52	CB Near Failure Exp/Regulation+Age	0.0438	-0.1221	-0.4291	-0.4104	-0.3993	-0.4201	-0.2565	-0.3876	0.8013
53	S&L Failure Exp/No Discount	0.0988	-0.1035	-0.3997	-0.3683	-0.3410	-0.3861	-0.2009	-0.3322	0.9522
54	S&L Failure Exp/Age	0.1184	-0.0816	-0.3908	-0.3578	-0.3300	-0.3763	-0.1927	-0.3219	0.6410
55	S&L Failure Exp/Age^2	0.0939	-0.0606	-0.3023	-0.2767	-0.2553	-0.2910	-0.1490	-0.2490	0.3090
56	S&L Failure Exp/SQRT(Age)	0.1205	-0.0978	-0.4269	-0.3920	-0.3621	-0.4117	-0.2100	-0.3520	0.8687
57	S&L Failure Exp/Regulation	0.1161	-0.0181	-0.2546	-0.2292	-0.2099	-0.2431	-0.1217	-0.2063	0.2806
58	S&L Failure Exp/Regulation+Age	0.1297	-0.0592	-0.3660	-0.3330	-0.3061	-0.3513	-0.1793	-0.3000	0.6231
59	S&L Near Failure Exp/No Discount	-0.0442	-0.1863	-0.3874	-0.3750	-0.3626	-0.3823	-0.2532	-0.3632	0.8951
60	S&L Near Failure Exp/Age	0.0180	-0.1351	-0.4201	-0.3995	-0.3846	-0.4106	-0.2776	-0.3928	0.7916
61	S&L Near Failure Exp/Age^2	0.0388	-0.0804	-0.3405	-0.3202	-0.3075	-0.3307	-0.2399	-0.3244	0.4642
62	S&L Near Failure Exp/SQRT(Age)	-0.0125	-0.1692	-0.4189	-0.4029	-0.3893	-0.4119	-0.2643	-0.3875	0.8993
63	S&L Near Failure Exp/Regulation	0.1147	0.0542	-0.1860	-0.1615	-0.1503	-0.1734	-0.1518	-0.1802	0.4249
64	S&L Near Failure Exp/Regulation+Age	0.0015	-0.1284	-0.3774	-0.3634	-0.3544	-0.3708	-0.2556	-0.3584	0.6393
65	CB Local Failure Exp/No Discount	-0.1636	-0.2859	-0.3057	-0.3186	-0.3187	-0.3135	-0.1582	-0.2790	0.5018
66	CB Nonlocal Failure Exp/No Discount	-0.0121	-0.2344	-0.4596	-0.4433	-0.4229	-0.4538	-0.2044	-0.3784	0.9040
67	CB Local Failure Exp/Age	-0.1598	-0.2803	-0.3045	-0.3175	-0.3181	-0.3122	-0.1603	-0.2794	0.3058
68	CB Nonlocal Failure Exp/Age	0.0279	-0.2066	-0.4815	-0.4583	-0.4340	-0.4722	-0.2159	-0.3938	0.5460
69	CB Local Failure Exp/Age^2	-0.1402	-0.2449	-0.2667	-0.2786	-0.2797	-0.2737	-0.1417	-0.2457	0.1437
70	CB Nonlocal Failure Exp/Age^2	0.0318	-0.1546	-0.3828	-0.3631	-0.3433	-0.3747	-0.1722	-0.3126	0.1720
71	CB Local Failure Exp/Regulation+Age	-0.1542	-0.2735	-0.3008	-0.3135	-0.3142	-0.3084	-0.1576	-0.2756	0.3013
72	CB Nonlocal Failure Exp/Regulation+Age	0.0394	-0.1870	-0.4635	-0.4406	-0.4175	-0.4542	-0.2048	-0.3775	0.5289
73	CB Local Near Failure Exp/No Discount	-0.1101	-0.2397	-0.3417	-0.3456	-0.3427	-0.3447	-0.1947	-0.3134	0.7233
74	CB Nonlocal Near Failure Exp/No Discount	-0.0337	-0.2036	-0.4134	-0.4045	-0.3942	-0.4102	-0.2229	-0.3658	0.9273

TABLE 5 (Continued)

75 CB Local Near Failure/Age	-0.0960	-0.2283	-0.3604	-0.3616	-0.3584	-0.3619	-0.2174	-0.3355	0.6022
76 CB Nonlocal Near Failure/Age	0.0379	-0.1606	-0.4941	-0.4720	-0.4560	-0.4840	-0.2875	-0.4420	0.8497
77 CB Local Near Failure/Age^2	-0.0873	-0.2037	-0.3254	-0.3268	-0.3249	-0.3267	-0.2040	-0.3074	0.4013
78 CB Nonlocal Near Failure/Age^2	0.0763	-0.1065	-0.4723	-0.4465	-0.4316	-0.4598	-0.2999	-0.4331	0.5265
79 CB Local Near Failure/Regulation+Age	-0.0734	-0.1896	-0.3239	-0.3243	-0.3226	-0.3246	-0.1984	-0.3027	0.5813
80 CB Nonlocal Near Failure/Regulation+Age	0.0677	-0.0945	-0.4138	-0.3923	-0.3800	-0.4034	-0.2462	-0.3714	0.7783
81 S&L Local Failure/No Discount	-0.0171	-0.1847	-0.3602	-0.3488	-0.3336	-0.3563	-0.1831	-0.3115	0.7874
82 S&L Nonlocal Failure Exp/No Discount	0.1187	-0.0811	-0.3843	-0.3512	-0.3232	-0.3698	-0.1867	-0.3143	0.9352
83 S&L Local Failure Exp/Age	-0.0025	-0.1556	-0.3296	-0.3175	-0.3032	-0.3251	-0.1708	-0.2859	0.5011
84 S&L Nonlocal Failure Exp/Age	0.1393	-0.0565	-0.3749	-0.3392	-0.3103	-0.3590	-0.1827	-0.3051	0.6247
85 S&L Local Failure Exp/Age^2	-0.0010	-0.1196	-0.2563	-0.2471	-0.2363	-0.2528	-0.1338	-0.2230	0.2522
86 S&L Nonlocal Failure Exp/Age^2	0.1102	-0.0407	-0.2892	-0.2615	-0.2392	-0.2768	-0.1407	-0.2351	0.2980
87 S&L Local Failure Exp/Regaulation+Age	0.0148	-0.1335	-0.3156	-0.3019	-0.2871	-0.3102	-0.1629	-0.2724	0.4982
88 S&L Nonlocal Failure Exp/Regulation+Age	0.1481	-0.0369	-0.3516	-0.3163	-0.2884	-0.3357	-0.1702	-0.2848	0.6080
89 S&L Local Near Failure Exp/No Discount	0.0829	-0.0237	-0.2365	-0.2129	-0.1955	-0.2256	-0.1377	-0.2042	0.6740
90 S&L Nonlocal Near Failure Exp/No Discount	-0.0650	-0.2139	-0.3956	-0.3889	-0.3794	-0.3934	-0.2391	-0.3650	0.9058
91 S&L Local Near Failure/Age	0.1671	0.0792	-0.1950	-0.1603	-0.1395	-0.1780	-0.1332	-0.1703	0.5114
92 S&L Nonlocal Near Failure Exp/Age	-0.0100	-0.1646	-0.4325	-0.4158	-0.4029	-0.4250	-0.2850	-0.4065	0.7891
93 S&L Local Near Failure Exp/Age^2	0.1761	0.1155	-0.1341	-0.1007	-0.0822	-0.1174	-0.1063	-0.1196	0.2888
94 S&L Nonlocal Near Failure/Age^2	0.0196	-0.1064	-0.3724	-0.3548	-0.3444	-0.3638	-0.2674	-0.3598	0.4681
95 S&L Local Near Failure/Regualtion+Age	0.1848	0.1174	-0.1498	-0.1154	-0.0968	-0.1326	-0.1098	-0.1304	0.4838
96 S&L Nonlocal Near Failure/Regualtion+Age	0.0315	-0.0880	-0.3437	-0.3255	-0.3144	-0.3349	-0.2352	-0.3248	0.7192

42 CB Failure Exp/Age	1.0000						
43 CB Failure Exp/Age^2	0.8814	1.0000					
44 CB Failure Exp/SQRT(Age)	0.9005	0.5950	1.0000				
45 CB Failure Exp/Regulation	0.7347	0.8540	0.4774	1.0000			
46 CB Failure Exp/Regulation+Age	0.9732	0.8563	0.8741	0.8311	1.0000		
47 CB Near Failure Exp/No Discount	0.3869	-0.0469	0.7332	-0.0636	0.3743	1.0000	
48 CB Near Failure Exp/Age	0.7340	0.3963	0.8949	0.3472	0.7317	0.8238	1.0000

TABLE 5 (Continued)

49 CB Near Failure Exp/Age^2	0.8193	0.6908	0.7616	0.6180	0.8193	0.4184	0.8487	1.0000	
50 CB Near Failure Exp/SQRT(Age)	0.5656	0.1525	0.8427	0.1210	0.5582	0.9636	0.9442	0.6329	1.0000
51 CB Near Failure Exp/Regulation	0.3869	0.2564	0.4337	0.5698	0.5396	0.4171	0.6144	0.6208	0.5235
52 CB Near Failure Exp/Regulation+Age	0.5878	0.2609	0.7725	0.3820	0.6566	0.8095	0.9280	0.7442	0.9022
53 S&L Failure Exp/No Discount	0.5221	0.0863	0.8230	0.0339	0.5035	0.9126	0.8348	0.5067	0.9197
54 S&L Failure Exp/Age	0.8753	0.6818	0.8465	0.5154	0.8388	0.3992	0.6821	0.7147	0.5513
55 S&L Failure Exp/Age^2	0.8255	0.8322	0.6269	0.6264	0.7762	0.0325	0.3915	0.5939	0.2004
56 S&L Failure Exp/SQRT(Age)	0.7692	0.4197	0.9166	0.3057	0.7428	0.7108	0.8389	0.6835	0.8059
57 S&L Failure Exp/Regulation	0.7410	0.7321	0.5682	0.7915	0.8046	0.0336	0.3844	0.5674	0.1995
58 S&L Failure Exp/Regulation+Age	0.8454	0.6455	0.8229	0.6016	0.8629	0.3895	0.6827	0.7157	0.5471
59 S&L Near Failure Exp/No Discount	0.3469	-0.0607	0.6852	-0.0712	0.3339	0.9730	0.7895	0.3941	0.9311
60 S&L Near Failure Exp/Age	0.5733	0.2417	0.7621	0.2483	0.5892	0.7941	0.9431	0.7883	0.8998
61 S&L Near Failure Exp/Age^2	0.5585	0.4086	0.5719	0.4178	0.5835	0.4060	0.7571	0.8688	0.5827
62 S&L Near Failure Exp/SQRT(Age)	0.4726	0.0666	0.7636	0.0682	0.4761	0.9482	0.9153	0.6014	0.9774
63 S&L Near Failure Exp/Regulation	0.3171	0.1397	0.4144	0.4267	0.4555	0.4569	0.6151	0.5799	0.5484
64 S&L Near Failure Exp/Regulation+Age	0.4198	0.1455	0.5906	0.3255	0.5105	0.6852	0.8154	0.6865	0.7757
65 CB Local Failure Exp/No Discount	0.3474	0.1501	0.4688	0.1035	0.3311	0.4570	0.4218	0.2688	0.4604
66 CB Nonlocal Failure Exp/No Discount	0.5593	0.1769	0.8114	0.1202	0.5402	0.8537	0.7986	0.5064	0.8674
67 CB Local Failure Exp/Age	0.4704	0.4120	0.4272	0.3379	0.4548	0.1966	0.3313	0.3442	0.2692
68 CB Nonlocal Failure Exp/Age	0.8670	0.7656	0.7787	0.6413	0.8454	0.3272	0.6442	0.7335	0.4886
69 CB Local Failure Exp/Age^2	0.4468	0.4847	0.3210	0.4124	0.4341	0.0262	0.2157	0.3143	0.1159
70 CB Nonlocal Failure Exp/Age^2	0.7675	0.8826	0.5078	0.7546	0.7455	-0.0676	0.3371	0.6208	0.1122
71 CB Local Failure Exp/Regulation+Age	0.4707	0.4134	0.4253	0.3804	0.4732	0.1927	0.3336	0.3487	0.2683
72 CB Nonlocal Failure Exp/Regulation+Age	0.8475	0.7460	0.7598	0.7354	0.8765	0.3196	0.6483	0.7394	0.4869
73 CB Local Near Failure Exp/No Discount	0.2966	-0.0339	0.5634	-0.0488	0.2852	0.7650	0.6166	0.3056	0.7295
74 CB Nonlocal Near Failure Exp/No Discount	0.3833	-0.0469	0.7260	-0.0630	0.3712	0.9909	0.8192	0.4177	0.9565
75 CB Local Near Failure/Age	0.4721	0.2338	0.5976	0.2016	0.4687	0.5673	0.6497	0.5259	0.6316
76 CB Nonlocal Near Failure/Age	0.7218	0.3950	0.8745	0.3468	0.7201	0.8008	0.9817	0.8396	0.9224
77 CB Local Near Failure/Age^2	0.5046	0.3878	0.5037	0.3448	0.5038	0.3184	0.5455	0.5946	0.4365
78 CB Nonlocal Near Failure/Age^2	0.7967	0.6811	0.7328	0.6097	0.7967	0.3948	0.8198	0.9747	0.6057
79 CB Local Near Failure/Regulation+Age	0.4006	0.1603	0.5457	0.2337	0.4418	0.5812	0.6313	0.4835	0.6309
80 CB Nonlocal Near Failure/Regulation+Age	0.5771	0.2604	0.7539	0.3814	0.6461	0.7878	0.9114	0.7364	0.8820
81 S&L Local Failure/No Discount	0.4557	0.1026	0.6930	0.0504	0.4374	0.7451	0.6781	0.4091	0.7491

TABLE 5 (Continued)

[redacted]

82 S&L Nonlocal Failure Exp/No Discount	0.5019	0.0678	0.8032	0.0215	0.4860	0.9009	0.8245	0.4985	0.9085
83 S&L Local Failure Exp/Age	0.6933	0.5477	0.6658	0.4156	0.6636	0.3185	0.5247	0.5325	0.4320
84 S&L Nonlocal Failure Exp/Age	0.8508	0.6608	0.8240	0.4991	0.8155	0.3875	0.6669	0.7032	0.5371
85 S&L Local Failure Exp/Age^2	0.6502	0.6526	0.4981	0.4987	0.6142	0.0500	0.3153	0.4458	0.1771
86 S&L Nonlocal Failure Exp/Age^2	0.8021	0.8093	0.6080	0.6073	0.7534	0.0254	0.3787	0.5825	0.1899
87 S&L Local Failure Exp/Regaulation+Age	0.6861	0.5321	0.6626	0.4830	0.6935	0.3162	0.5347	0.5438	0.4363
88 S&L Nonlocal Failure Exp/Regulation+Age	0.8225	0.6260	0.8018	0.5866	0.8412	0.3790	0.6688	0.7052	0.5342
89 S&L Local Near Failure Exp/No Discount	0.2095	-0.1244	0.4915	-0.1137	0.2075	0.7555	0.6119	0.2889	0.7253
90 S&L Nonlocal Near Failure Exp/No Discount	0.3427	-0.0813	0.6910	-0.0845	0.3344	0.9871	0.8024	0.3962	0.9461
91 S&L Local Near Failure/Age	0.3310	0.0980	0.4736	0.1137	0.3456	0.5273	0.6292	0.5222	0.6001
92 S&L Nonlocal Near Failure Exp/Age	0.5787	0.2516	0.7632	0.2560	0.5938	0.7890	0.9365	0.7834	0.8935
93 S&L Local Near Failure Exp/Age^2	0.3243	0.2166	0.3457	0.2266	0.3417	0.2575	0.4941	0.5729	0.3762
94 S&L Nonlocal Near Failure/Age^2	0.5670	0.4194	0.5780	0.4268	0.5912	0.4089	0.7557	0.8634	0.5838
95 S&L Local Near Failure/Regualtion+Age	0.2665	0.0336	0.4226	0.1593	0.3293	0.5275	0.6032	0.4764	0.5885
96 S&L Nonlocal Near Failure/Regualtion+Age	0.4596	0.1440	0.6585	0.2919	0.5364	0.7562	0.8584	0.6834	0.8386

[redacted]

51 CB Near Failure Exp/Regulation	1.0000								
52 CB Near Failure Exp/Regulation+Age	0.8313	1.0000							
53 S&L Failure Exp/No Discount	0.3898	0.7769	1.0000						
54 S&L Failure Exp/Age	0.2992	0.5327	0.6498	1.0000					
55 S&L Failure Exp/Age^2	0.1385	0.2330	0.2835	0.9014	1.0000				
56 S&L Failure Exp/SQRT(Age)	0.3855	0.7241	0.9016	0.9116	0.6504	1.0000			
57 S&L Failure Exp/Regulation	0.4375	0.3708	0.2696	0.8031	0.8518	0.5969	1.0000		
58 S&L Failure Exp/Regulation+Age	0.4465	0.6008	0.6401	0.9668	0.8452	0.8933	0.8854	1.0000	
59 S&L Near Failure Exp/No Discount	0.4162	0.7854	0.8771	0.3326	-0.0243	0.6487	-0.0162	0.3251	1.0000
60 S&L Near Failure Exp/Age	0.6537	0.9138	0.7654	0.5031	0.1834	0.7077	0.2201	0.5249	0.7874
61 S&L Near Failure Exp/Age^2	0.6589	0.7193	0.4492	0.4682	0.2822	0.5245	0.3159	0.4978	0.4093
62 S&L Near Failure Exp/SQRT(Age)	0.5501	0.8989	0.8717	0.4363	0.0713	0.7191	0.0976	0.4449	0.9373
63 S&L Near Failure Exp/Regulation	0.9401	0.8173	0.4430	0.2636	0.0453	0.4004	0.3253	0.4050	0.4739
64 S&L Near Failure Exp/Regulation+Age	0.8599	0.9293	0.6165	0.3252	0.0379	0.5280	0.2120	0.4127	0.6858
65 CB Local Failure Exp/No Discount	0.1689	0.3737	0.4340	0.3165	0.1744	0.4088	0.1518	0.3038	0.4362

TABLE 5 (Continued)

66	CB Nonlocal Failure Exp/No Discount	0.3764	0.7384	0.8824	0.5820	0.2698	0.7987	0.2483	0.5676	0.8155
67	CB Local Failure Exp/Age	0.1456	0.2595	0.2052	0.3658	0.3551	0.3143	0.3104	0.3482	0.1742
68	CB Nonlocal Failure Exp/Age	0.3560	0.5192	0.4755	0.7848	0.7345	0.6937	0.6640	0.7609	0.2946
69	CB Local Failure Exp/Age^2	0.1105	0.1488	0.0332	0.2989	0.3690	0.1822	0.3192	0.2794	0.0107
70	CB Nonlocal Failure Exp/Age^2	0.2338	0.2184	0.0809	0.6188	0.7530	0.3819	0.6653	0.5877	-0.0750
71	CB Local Failure Exp/Regulation+Age	0.1977	0.2841	0.2018	0.3620	0.3481	0.3115	0.3412	0.3623	0.1698
72	CB Nonlocal Failure Exp/Regulation+Age	0.5045	0.5901	0.4612	0.7543	0.6908	0.6729	0.7269	0.7815	0.2861
73	CB Local Near Failure Exp/No Discount	0.3018	0.6022	0.6847	0.2928	0.0183	0.5287	0.0178	0.2844	0.7447
74	CB Nonlocal Near Failure Exp/No Discount	0.4169	0.8057	0.9071	0.3982	0.0335	0.7075	0.0350	0.3888	0.9641
75	CB Local Near Failure/Age	0.3806	0.6007	0.5506	0.4225	0.2242	0.5380	0.2205	0.4225	0.5439
76	CB Nonlocal Near Failure/Age	0.6078	0.9116	0.8175	0.6748	0.3919	0.8253	0.3847	0.6755	0.7674
77	CB Local Near Failure/Age^2	0.3739	0.4807	0.3456	0.4259	0.3265	0.4326	0.3139	0.4276	0.2997
78	CB Nonlocal Near Failure/Age^2	0.6062	0.7197	0.4867	0.6984	0.5868	0.6625	0.5599	0.6986	0.3724
79	CB Local Near Failure/Regulation+Age	0.5348	0.6714	0.5389	0.3487	0.1369	0.4903	0.2240	0.3911	0.5634
80	CB Nonlocal Near Failure/Regulation+Age	0.8237	0.9842	0.7605	0.5264	0.2340	0.7117	0.3710	0.5943	0.7644
81	S&L Local Failure/No Discount	0.2970	0.6218	0.7876	0.5317	0.2494	0.7218	0.2299	0.5201	0.7080
82	S&L Nonlocal Failure Exp/No Discount	0.3901	0.7708	0.9885	0.6366	0.2696	0.8900	0.2596	0.6290	0.8562
83	S&L Local Failure Exp/Age	0.2150	0.4081	0.4672	0.7383	0.6771	0.6655	0.5927	0.7074	0.2675
84	S&L Nonlocal Failure Exp/Age	0.2964	0.5213	0.6436	0.9855	0.8854	0.9003	0.7916	0.9544	0.3223
85	S&L Local Failure Exp/Age^2	0.1086	0.1971	0.1970	0.6533	0.7335	0.4665	0.6149	0.6067	0.0061
86	S&L Nonlocal Failure Exp/Age^2	0.1347	0.2230	0.2820	0.8900	0.9852	0.6435	0.8417	0.8361	-0.0300
87	S&L Local Failure Exp/Regaulation+Age	0.3202	0.4621	0.4741	0.7367	0.6568	0.6723	0.6696	0.7527	0.2652
88	S&L Nonlocal Failure Exp/Regulation+Age	0.4447	0.5907	0.6337	0.9522	0.8294	0.8819	0.8733	0.9872	0.3159
89	S&L Local Near Failure Exp/No Discount	0.3412	0.6250	0.6940	0.2385	-0.0616	0.5058	-0.0435	0.2385	0.7516
90	S&L Nonlocal Near Failure Exp/No Discount	0.4207	0.7992	0.8731	0.3336	-0.0312	0.6538	-0.0186	0.3291	0.9749
91	S&L Local Near Failure/Age	0.4580	0.6223	0.5503	0.3416	0.1035	0.4983	0.1372	0.3609	0.5282
92	S&L Nonlocal Near Failure Exp/Age	0.6452	0.9051	0.7528	0.4985	0.1855	0.6980	0.2204	0.5193	0.7814
93	S&L Local Near Failure Exp/Age^2	0.4473	0.4762	0.3359	0.3310	0.1880	0.3808	0.2147	0.3537	0.2646
94	S&L Nonlocal Near Failure/Age^2	0.6532	0.7172	0.4426	0.4646	0.2837	0.5182	0.3154	0.4929	0.4113
95	S&L Local Near Failure/Regualtion+Age	0.6157	0.6896	0.5297	0.2733	0.0254	0.4497	0.1593	0.3411	0.5342
96	S&L Nonlocal Near Failure/Regualtion+Age	0.8179	0.9499	0.7016	0.3884	0.0722	0.6090	0.2338	0.4700	0.7572

TABLE 5 (Continued)

60	S&L Near Failure Exp/Age	1.0000								
61	S&L Near Failure Exp/Age^2	0.8614	1.0000							
62	S&L Near Failure Exp/SQRT(Age)	0.9399	0.6434	1.0000						
63	S&L Near Failure Exp/Regulation	0.7292	0.7302	0.6198	1.0000					
64	S&L Near Failure Exp/Regulation+Age	0.9092	0.8166	0.8355	0.8955	1.0000				
65	CB Local Failure Exp/No Discount	0.3749	0.2126	0.4332	0.1725	0.2942	1.0000			
66	CB Nonlocal Failure Exp/No Discount	0.7266	0.4297	0.8220	0.4042	0.5911	0.0838	1.0000		
67	CB Local Failure Exp/Age	0.2551	0.2189	0.2278	0.1046	0.1822	0.8116	-0.0489	1.0000	
68	CB Nonlocal Failure Exp/Age	0.5053	0.5089	0.4066	0.3000	0.3726	-0.0649	0.6611	-0.0320	1.0000
69	CB Local Failure Exp/Age^2	0.1387	0.1725	0.0763	0.0467	0.0887	0.5788	-0.1206	0.9396	-0.0246
70	CB Nonlocal Failure Exp/Age^2	0.2018	0.3744	0.0353	0.1347	0.1187	-0.1394	0.2671	-0.0339	0.8885
71	CB Local Failure Exp/Regulation+Age	0.2605	0.2277	0.2287	0.1492	0.2111	0.7952	-0.0459	0.9924	-0.0274
72	CB Nonlocal Failure Exp/Regulation+Age	0.5265	0.5379	0.4154	0.4356	0.4641	-0.0587	0.6383	-0.0261	0.9746
73	CB Local Near Failure Exp/No Discount	0.5939	0.2974	0.7173	0.3304	0.5115	0.6397	0.5171	0.3447	0.1412
74	CB Nonlocal Near Failure Exp/No Discount	0.7897	0.4051	0.9412	0.4567	0.6816	0.3923	0.8743	0.1542	0.3470
75	CB Local Near Failure/Age	0.6150	0.4744	0.6136	0.3835	0.5324	0.6449	0.3750	0.5141	0.2444
76	CB Nonlocal Near Failure/Age	0.9253	0.7477	0.8938	0.6079	0.7998	0.3214	0.8200	0.2505	0.6760
77	CB Local Near Failure/Age^2	0.5117	0.5257	0.4185	0.3556	0.4482	0.5440	0.1934	0.5535	0.2590
78	CB Nonlocal Near Failure/Age^2	0.7596	0.8436	0.5746	0.5642	0.6621	0.1638	0.5256	0.2456	0.7637
79	CB Local Near Failure/Regulation+Age	0.6216	0.4711	0.6278	0.5278	0.6262	0.6130	0.3667	0.4595	0.1943
80	CB Nonlocal Near Failure/Regulation+Age	0.8975	0.7108	0.8789	0.8094	0.9141	0.2814	0.7575	0.1873	0.5478
81	S&L Local Failure/No Discount	0.6151	0.3508	0.7078	0.3324	0.4890	0.8526	0.4857	0.6285	0.1612
82	S&L Nonlocal Failure Exp/No Discount	0.7599	0.4487	0.8631	0.4452	0.6153	0.3122	0.9231	0.0951	0.5148
83	S&L Local Failure Exp/Age	0.3833	0.3311	0.3449	0.1788	0.2461	0.6435	0.2593	0.8210	0.3215
84	S&L Nonlocal Failure Exp/Age	0.4929	0.4651	0.4242	0.2638	0.3190	0.2090	0.6164	0.2221	0.8382
85	S&L Local Failure Exp/Age^2	0.1567	0.2007	0.0828	0.0322	0.0466	0.4098	0.0880	0.7441	0.3162
86	S&L Nonlocal Failure Exp/Age^2	0.1751	0.2797	0.0626	0.0449	0.0326	0.1009	0.2935	0.2281	0.7797
87	S&L Local Failure Exp/Regaulation+Age	0.4037	0.3574	0.3550	0.2788	0.3081	0.6112	0.2719	0.7881	0.3320
88	S&L Nonlocal Failure Exp/Regulation+Age	0.5160	0.4957	0.4343	0.4061	0.4081	0.2071	0.5980	0.2162	0.8095
89	S&L Local Near Failure Exp/No Discount	0.6248	0.3230	0.7400	0.3983	0.5528	-0.0214	0.7871	-0.1676	0.3320
90	S&L Nonlocal Near Failure Exp/No Discount	0.8051	0.4218	0.9546	0.4799	0.7042	0.4987	0.7970	0.2245	0.2614
91	S&L Local Near Failure/Age	0.6778	0.5856	0.6340	0.5278	0.6165	-0.1230	0.6499	-0.2157	0.4968
92	S&L Nonlocal Near Failure Exp/Age	0.9912	0.8535	0.9321	0.7167	0.9011	0.4395	0.6918	0.3229	0.4731

TABLE 5 (Continued)

93 S&L Local Near Failure Exp/Age^2	0.5700	0.6694	0.4207	0.5162	0.5335	-0.1735	0.4184	-0.2176	0.4902
94 S&L Nonlocal Near Failure/Age^2	0.8559	0.9888	0.6422	0.7185	0.8129	0.2694	0.4062	0.2844	0.4816
95 S&L Local Near Failure/Regualtion+Age	0.6712	0.5653	0.6352	0.6827	0.7003	-0.1163	0.6148	-0.2139	0.4227
96 S&L Nonlocal Near Failure/Regualtion+Age	0.9355	0.7838	0.8918	0.8833	0.9658	0.3865	0.6375	0.2522	0.3781

69 CB Local Failure Exp/Age^2	1.0000								
70 CB Nonlocal Failure Exp/Age^2	0.0166	1.0000							
71 CB Local Failure Exp/Regulation+Age	0.9375	-0.0312	1.0000						
72 CB Nonlocal Failure Exp/Regulation+Age	-0.0195	0.8633	-0.0093	1.0000					
73 CB Local Near Failure Exp/No Discount	0.1387	-0.1133	0.3326	0.1419	1.0000				
74 CB Nonlocal Near Failure Exp/No Discount	0.0012	-0.0542	0.1523	0.3381	0.6714	1.0000			
75 CB Local Near Failure/Age	0.3479	0.0804	0.5070	0.2549	0.8718	0.4707	1.0000		
76 CB Nonlocal Near Failure/Age	0.1598	0.3657	0.2549	0.6780	0.4875	0.8196	0.4932	1.0000	
77 CB Local Near Failure/Age^2	0.4481	0.2026	0.5495	0.2715	0.6392	0.2328	0.9286	0.3919	1.0000
78 CB Nonlocal Near Failure/Age^2	0.2390	0.6503	0.2517	0.7668	0.1827	0.4161	0.3547	0.8494	0.4120
79 CB Local Near Failure/Regulation+Age	0.2945	0.0250	0.4702	0.2445	0.8666	0.4877	0.9637	0.4813	0.8746
80 CB Nonlocal Near Failure/Regulation+Age	0.1000	0.2440	0.2129	0.6170	0.4823	0.8057	0.4575	0.9284	0.3414
81 S&L Local Failure/No Discount	0.3906	-0.0925	0.6167	0.1594	0.6910	0.7130	0.6334	0.6175	0.4764
82 S&L Nonlocal Failure Exp/No Discount	-0.0525	0.1058	0.0941	0.5002	0.6452	0.9019	0.5011	0.8180	0.2955
83 S&L Local Failure Exp/Age	0.7633	0.2159	0.8122	0.3094	0.3031	0.3032	0.4591	0.4855	0.4864
84 S&L Nonlocal Failure Exp/Age	0.1582	0.6704	0.2198	0.8055	0.2667	0.3901	0.3794	0.6682	0.3766
85 S&L Local Failure Exp/Age^2	0.8033	0.3143	0.7346	0.2958	0.0602	0.0450	0.2572	0.2964	0.3546
86 S&L Nonlocal Failure Exp/Age^2	0.2294	0.8019	0.2223	0.7338	0.0063	0.0279	0.1976	0.3839	0.2927
87 S&L Local Failure Exp/Regaulation+Age	0.7303	0.2158	0.7994	0.3504	0.2855	0.3042	0.4476	0.4999	0.4781
88 S&L Nonlocal Failure Exp/Regulation+Age	0.1498	0.6351	0.2299	0.8292	0.2634	0.3811	0.3856	0.6689	0.3842
89 S&L Local Near Failure Exp/No Discount	-0.2251	-0.0212	-0.1629	0.3245	0.4285	0.7798	0.2627	0.6345	0.0821
90 S&L Nonlocal Near Failure Exp/No Discount	0.0458	-0.1174	0.2200	0.2593	0.7789	0.9732	0.5791	0.7733	0.3278
91 S&L Local Near Failure/Age	-0.2470	0.2448	-0.2034	0.5034	0.2373	0.5572	0.2179	0.6654	0.1493
92 S&L Nonlocal Near Failure Exp/Age	0.1990	0.1807	0.3267	0.4955	0.6184	0.7787	0.6453	0.9101	0.5427
93 S&L Local Near Failure Exp/Age^2	-0.2256	0.3688	-0.2032	0.4989	0.0547	0.2849	0.1327	0.5322	0.1629

TABLE 5 (Continued)

[redacted]

94	S&L Nonlocal Near Failure/Age^2	0.2343	0.3536	0.2916	0.5118	0.3236	0.4030	0.5051	0.7384	0.5552
95	S&L Local Near Failure/Regualtion+Age	-0.2463	0.1708	-0.1914	0.4784	0.2427	0.5563	0.2125	0.6371	0.1365
96	S&L Nonlocal Near Failure/Regualtion+Age	0.1336	0.0929	0.2757	0.4582	0.5880	0.7474	0.5892	0.8348	0.4770

[redacted]

78	CB Nonlocal Near Failure/Age^2	1.0000								
79	CB Local Near Failure/Regulation+Age	0.3216	1.0000							
80	CB Nonlocal Near Failure/Regulation+Age	0.7469	0.5298	1.0000						
81	S&L Local Failure/No Discount	0.3412	0.6093	0.5662	1.0000					
82	S&L Nonlocal Failure Exp/No Discount	0.4904	0.4936	0.7644	0.6931	1.0000				
83	S&L Local Failure Exp/Age	0.4760	0.3884	0.3744	0.7114	0.3824	1.0000			
84	S&L Nonlocal Failure Exp/Age	0.6982	0.3107	0.5224	0.4439	0.6494	0.6134	1.0000		
85	S&L Local Failure Exp/Age^2	0.4118	0.1812	0.1823	0.4105	0.1338	0.9221	0.5334	1.0000	
86	S&L Nonlocal Failure Exp/Age^2	0.5829	0.1145	0.2279	0.1884	0.2817	0.5600	0.9015	0.6063	1.0000
87	S&L Local Failure Exp/Regaulation+Age	0.4909	0.4041	0.4324	0.6972	0.3944	0.9746	0.6178	0.8791	0.5470
88	S&L Nonlocal Failure Exp/Regulation+Age	0.6982	0.3594	0.5903	0.4393	0.6401	0.5911	0.9666	0.4964	0.8453
89	S&L Local Near Failure Exp/No Discount	0.3092	0.2944	0.6451	0.3500	0.7359	0.0494	0.2669	-0.1119	-0.0439
90	S&L Nonlocal Near Failure Exp/No Discount	0.3672	0.5980	0.7719	0.7483	0.8545	0.2950	0.3166	0.0202	-0.0416
91	S&L Local Near Failure/Age	0.5529	0.2408	0.6547	0.2131	0.5988	0.0675	0.3831	-0.0477	0.1332
92	S&L Nonlocal Near Failure Exp/Age	0.7460	0.6486	0.8811	0.6463	0.7380	0.4145	0.4797	0.1831	0.1710
93	S&L Local Near Failure Exp/Age^2	0.6042	0.1467	0.5100	0.0715	0.3786	0.0566	0.3733	-0.0016	0.2204
94	S&L Nonlocal Near Failure/Age^2	0.8350	0.4992	0.7016	0.3800	0.4342	0.3606	0.4534	0.2262	0.2749
95	S&L Local Near Failure/Regualtion+Age	0.5051	0.2880	0.7205	0.2109	0.5757	0.0357	0.3111	-0.0887	0.0521
96	S&L Nonlocal Near Failure/Regualtion+Age	0.6507	0.6689	0.9274	0.5914	0.6908	0.3228	0.3737	0.0945	0.0606

[redacted]

87	S&L Local Failure Exp/Regaulation+Age	1.0000								
88	S&L Nonlocal Failure Exp/Regulation+Age	0.6379	1.0000							
89	S&L Local Near Failure Exp/No Discount	0.0684	0.2624	1.0000						
90	S&L Nonlocal Near Failure Exp/No Discount	0.2915	0.3142	0.6978	1.0000					
91	S&L Local Near Failure/Age	0.1068	0.3963	0.8426	0.4716	1.0000				
92	S&L Nonlocal Near Failure Exp/Age	0.4302	0.5031	0.5437	0.8113	0.5744	1.0000			

TABLE 5 (Continued)

[redacted]										
93	S&L Local Near Failure Exp/Age^2	0.0978	0.3900	0.5637	0.2136	0.9109	0.4705	1.0000		
94	S&L Nonlocal Near Failure/Age^2	0.3821	0.4838	0.2604	0.4341	0.4877	0.8651	0.5625	1.0000	
95	S&L Local Near Failure/Regualtion+Age	0.1067	0.3731	0.8218	0.4829	0.9560	0.5751	0.8515	0.4759	1.0000
96	S&L Nonlocal Near Failure/Regualtion+Age	0.3785	0.4580	0.5466	0.7837	0.5650	0.9397	0.4510	0.7913	0.6518

END OF TABLE 5

TABLE 6
Hierarchical Baseline Model Construction
(Constant Rate Exponential Model)

Variables	Coeff	Error	Coeff	Error
Const	-4.5981**	0.6887	-8.5623**	1.2789
Organizational Level Controls				
Age	0.0995**	0.0095	0.0914**	0.0099
Age^2	-0.0008**	0.0001	-0.0007**	0.0001
log (Total Asset)	-0.4539**	0.0700	-0.3718**	0.0747
Federal Charter	0.8032**	0.1292	0.6380**	0.1331
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	0.0000	0.0000	-0.0001	0.0000
Socio-Economic Controls				
Unemployment Rate			0.2626**	0.0392
Dow Jones Index			-0.0006**	0.0001
Personal Income			0.0937**	0.0239
Bank Prime Loan Rate			0.1324	0.0723
Nonresidential Construction/10^6			0.0029	0.0080
NCREIF Index			-0.1788**	0.0350
Population Level Density Controls				
CB Density				
S&L Density				
CU Density				
CB Density^2/1000				
S&L Density^2/1000				
CU Density^2/1000				
Founding CB Density				
Founding S&L Density				
Founding CU Density				
Controls for Alternative Arguments				
CB Mass Density				
S&L Mass Density				
Regulation Interval				
# of FDIC Enforcement				
CB Employee Release				
CB Deposit Release/1000				
S&L Deposit Release/1000				
Log-likelihoods	**-7599.2090**		**-7517.3104**	

$*P<0.05$ $**P<0.01$

TABLE 6 (Continued)
Hierarchical Baseline Model Construction
(Constant Rate Exponential Model)

[redacted]				
Variables	**Coeff**	**Error**	**Coeff**	**Error**
Const	-9.2213**	1.4634	-9.0361**	2.0257
Organizational Level Controls				
Age	0.0831**	0.0108	0.0769**	0.0112
Age^2	-0.0006**	0.0001	-0.0006**	0.0001
log (Total Asset)	-0.3303**	0.0759	-0.3473**	0.0761
Federal Charter	0.4696**	0.1401	0.4902**	0.1420
Capital Asset Ratio	-0.0003**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001*	0.0000	-0.0001	0.0000
Socio-Economic Controls				
Unemployment Rate	0.2914**	0.0482	0.2738**	0.0485
Dow Jones Index	-0.0006**	0.0001	-0.0005**	0.0002
Personal Income	0.1559**	0.0297	0.1554**	0.0310
Bank Prime Loan Rate	0.0692	0.0787	-0.0121	0.0967
Nonresidential Construction/10^6	0.0022	0.0086	0.0095	0.0118
NCREIF Index	-0.1822**	0.0358	-0.1028*	0.0417
Population Level Density Controls				
CB Density	-0.0022	0.0012	-0.0023	0.0014
S&L Density	0.0315**	0.0070	0.0321**	0.0078
CU Density	-0.0034	0.0030	-0.0027	0.0030
CB Density^2/1000	0.0013**	0.0005	0.0009	0.0005
S&L Density^2/1000	-0.1144**	0.0233	-0.0833**	0.0254
CU Density^2/1000	0.0027*	0.0013	0.0015	0.0013
Founding CB Density	0.0020**	0.0007	0.0019*	0.0008
Founding S&L Density	-0.0155**	0.0038	-0.0197**	0.0042
Founding CU Density	0.0009	0.0020	0.0025	0.0020
Controls for Alternative Arguments				
CB Mass Density			-0.0038*	0.0016
S&L Mass Density			-0.0020	0.0019
Regulation Interval			-0.0035	0.0026
# of FDIC Enforcement			0.0056*	0.0024
CB Employee Release			0.0001	0.0001
CB Deposit Release/1000			-0.0493	0.0297
S&L Deposit Release/1000			0.0451*	0.0198
Log-Likelihoods	**-7468.8399**		**-7436.6889**	

***P<0.05 **P<0.01**

TABLE 7
Baseline Model Estimation (Constant Rate Exponential Models)

Variables	Coeff	Error	Coeff	Error
Const	-10.8479**	3.2272	-5.4128	3.2671
Age	0.0824**	0.0150	0.0714**	0.0140
Age^2	-0.0006**	0.0001	-0.0007**	0.0001
log (Total Asset)	-0.3510**	0.0767	-0.3144**	0.0753
Federal Charter	0.4932**	0.1420	0.4760**	0.1420
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2757**	0.0485	0.2635**	0.0481
Dow Jones Index	-0.0007**	0.0002	-0.0007**	0.0002
Personal Income	0.1535**	0.0312	0.1694**	0.0317
Bank Prime Loan Rate	-0.0010	0.0989	-0.0671	0.0977
Nonresidential Construction/10^6	0.0094	0.0121	-0.0012	0.0117
NCREIF Index	-0.1006*	0.0420	-0.1197**	0.0420
CB Density	-0.0023	0.0014	-0.0018	0.0014
S&L Density	0.0332**	0.0079	0.0303**	0.0079
CU Density	-0.0033	0.0030	-0.0016	0.0030
CB $Density^2$/1000	0.0010	0.0005	0.0009	0.0005
S&L $Density^2$/1000	-0.0854**	0.0256	-0.0802**	0.0256
CU $Density^2$/1000	0.0016	0.0013	0.0014	0.0013
Founding CB Density	0.0020*	0.0008	0.0016	0.0008
Founding S&L Density	-0.0205**	0.0043	-0.0190**	0.0043
Founding CU Density	0.0030	0.0020	0.0017	0.0020
CB Mass Density	-0.0038*	0.0016	-0.0036*	0.0015
S&L Mass Density	-0.0020	0.0019	-0.0025	0.0018
Regulation Interval	-0.0024	0.0032	-0.0066*	0.0031
# of FDIC Enforcement	0.0061*	0.0027	0.0024	0.0026
CB CB Employee Release	0.0001	0.0001	0.0001	0.0001
CB Deposit Release/1000	-0.0520	0.0299	-0.0431	0.0300
S&L Deposit Release/1000	0.0467*	0.0199	0.0486*	0.0199
Congenital Failure Exp/No Discount	-0.0010	0.0011		
Congenital Operationg Exp/No Discount	0.0001	0.0001		
Congenital Failure Exp/Age			-0.0061**	0.0015
Congenital Operating Exp/Age			0.0004	0.0004
Congenital Failure Exp/Age^2				
Congenital Operating Exp/Age^2				
Congenital Failure Exp/SQRT(Age)				
Congenital Operating Exp/SQRT(Age)				
Congenital Failure Exp/Regulation				
Congenital Operating Exp/Regulation				
Congenital Failure Exp/Regulation+Age				
Congenital Operating Exp/Regulation+Age				
Log-Likelihoods	-7433.4695		-7420.7597	

*P<0.05 **P<0.01

TABLE 7 (Continued)
Baseline Model Estimation (Constant Rate Exponential Models)

[redacted]				
Variables	**Coeff**	**Error**	**Coeff**	**Error**
Const	-1.3581	3.1880	-8.3392**	3.2280
Age	0.0686**	0.0133	0.0751**	0.0145
Age^2	-0.0007**	0.0001	-0.0006**	0.0001
log (Total Asset)	-0.3034**	0.0746	-0.3293**	0.0759
Federal Charter	0.4546**	0.1425	0.4888**	0.1419
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2558**	0.0482	0.2700**	0.0482
Dow Jones Index	-0.0005*	0.0002	-0.0007**	0.0003
Personal Income	0.1782**	0.0317	0.1618**	0.0315
Bank Prime Loan Rate	-0.1150	0.0970	-0.0302	0.0979
Nonresidential Construction/10^6	-0.0013	0.0115	0.0018	0.0119
NCREIF Index	-0.1277**	0.0417	-0.1115**	0.0421
CB Density	-0.0015	0.0014	-0.0021	0.0014
S&L Density	0.0260**	0.0079	0.0328**	0.0079
CU Density	0.0004	0.0031	-0.0028	0.0030
CB $Density^2$/1000	0.0008	0.0005	0.0009	0.0005
S&L $Density^2$/1000	-0.0720**	0.0254	-0.0851**	0.0256
CU $Density^2$/1000	0.0011	0.0013	0.0015	0.0013
Founding CB Density	0.0013	0.0009	0.0018*	0.0008
Founding S&L Density	-0.0157**	0.0044	-0.0207**	0.0042
Founding CU Density	0.0002	0.0020	0.0026	0.0020
CB Mass Density	-0.0034*	0.0015	-0.0037*	0.0016
S&L Mass Density	-0.0028	0.0018	-0.0022	0.0018
Regulation Interval	-0.0088**	0.0030	-0.0047	0.0031
# of FDIC Enforcement	0.0016	0.0026	0.0037	0.0027
CB CB Employee Release	0.0001	0.0001	0.0001	0.0001
CB Deposit Release/1000	-0.0345	0.0299	-0.0489	0.0300
S&L Deposit Release/1000	0.0461*	0.0198	0.0491*	0.0199
Congenital Failure Exp/No Discount				
Congenital Operationg Exp/No Discount				
Congenital Failure Exp/Age				
Congenital Operating Exp/Age				
Congenital Failure Exp/Age^2	-0.0076**	0.0019		
Congenital Operating Exp/Age^2	-0.0005	0.0008		
Congenital Failure Exp/SQRT(Age)			-0.0042**	0.0012
Congenital Operating Exp/SQRT(Age)			0.0004	0.0002
Congenital Failure Exp/Regulation				
Congenital Operating Exp/Regulation				
Congenital Failure Exp/Regulation+Age				
Congenital Operating Exp/Regulation+Age				
Log-Likelihoods	**-7414.5787**		**-7426.3740**	

***P<0.05 **P<0.01**

TABLE 7 (Continued)
Baseline Model Estimation (Constant Rate Exponential Models)

Variables	Coeff	Error	Coeff	Error
Const	-4.6824*	2.1504	-4.8742*	2.3667
Age	0.0815**	0.0116	0.0719**	0.0116
Age^2	-0.0007**	0.0001	-0.0007**	0.0001
log (Total Asset)	-0.3086**	0.0753	-0.3104**	0.0752
Federal Charter	0.4616**	0.1427	0.4759**	0.1422
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2534**	0.0485	0.2608**	0.0482
Dow Jones Index	-0.0008**	0.0002	-0.0007**	0.0002
Personal Income	0.1725**	0.0313	0.1699**	0.0315
Bank Prime Loan Rate	-0.0715	0.0941	-0.0682	0.0953
Nonresidential Construction/10^6	-0.0024	0.0116	-0.0023	0.0117
NCREIF Index	-0.1253**	0.0420	-0.1216**	0.0420
CB Density	-0.0018	0.0014	-0.0019	0.0014
S&L Density	0.0265**	0.0079	0.0301**	0.0079
CU Density	0.0005	0.0030	-0.0011	0.0030
CB $Density^2$/1000	0.0008	0.0005	0.0009	0.0005
S&L $Density^2$/1000	-0.0719**	0.0254	-0.0796**	0.0256
CU $Density^2$/1000	0.0010	0.0013	0.0013	0.0013
Founding CB Density	0.0014	0.0009	0.0016	0.0008
Founding S&L Density	-0.0159**	0.0044	-0.0189**	0.0043
Founding CU Density	0.0001	0.0020	0.0014	0.0020
CB Mass Density	-0.0035*	0.0015	-0.0035*	0.0015
S&L Mass Density	-0.0027	0.0018	-0.0025	0.0018
Regulation Interval	-0.0064*	0.0027	-0.0067*	0.0028
# of FDIC Enforcement	0.0025	0.0025	0.0021	0.0026
CB Employee Release	0.0001	0.0001	0.0001	0.0001
CB Deposit Release/1000	-0.0368	0.0298	-0.0423	0.0300
S&L Deposit Release/1000	0.0450*	0.0198	0.0486*	0.0199
Congenital Failure Exp/No Discount				
Congenital Operationg Exp/No Discount				
Congenital Failure Exp/Age				
Congenital Operating Exp/Age				
Congenital Failure Exp/Age^2				
Congenital Operating Exp/Age^2				
Congenital Failure Exp/SQRT(Age)				
Congenital Operating Exp/SQRT(Age)				
Congenital Failure Exp/Regulation	-0.0070**	0.0013		
Congenital Operating Exp/Regulation	0.0004**	0.0001		
Congenital Failure Exp/Regulation+Age			-0.0051**	0.0010
Congenital Operating Exp/Regulation+Age			0.0003*	0.0001
Log-Likelihoods	-7414.4191		-7421.0781	

*P<0.05 **P<0.01

TABLE 8

Baseline Model Estimation (Piecewise Exponential Models)

[redacted]

Variables	Coeff	Error	Coeff	Error
0-5 Years	-5.7941**	1.9914	-4.7162*	2.0081
5-10 Years	-5.8939**	1.9381	-5.0254**	1.9386
>10 Years	-6.4707**	2.0482	-5.4638**	2.0198
log (Total Asset)	-0.2476**	0.0686	-0.2293**	0.0682
Federal Charter	0.4961**	0.1406	0.4722**	0.1409
Capital Asset Ratio	-0.0003**	0.0001	-0.0003**	0.0001
Nonperforming Loan/Total Loan	-0.0001*	0.0000	-0.0001*	0.0000
Unemployment Rate	0.2858**	0.0467	0.2791**	0.0466
Dow Jones Index	-0.0006**	0.0002	-0.0007**	0.0002
Personal Income	0.1677**	0.0313	0.1832**	0.0317
Bank Prime Loan Rate	-0.0606	0.0914	-0.1004	0.0908
Nonresidential Construction/10^6	0.0128	0.0108	0.0119	0.0106
NCREIF Index	-0.1439**	0.0400	-0.1579**	0.0399
CB Density	-0.0021	0.0013	-0.0016	0.0013
S&L Density	0.0329**	0.0077	0.0296**	0.0076
CU Density	-0.0054*	0.0027	-0.0032	0.0028
CB Density^2/1000	0.0008	0.0005	0.0007	0.0005
S&L Density^2/1000	-0.0803**	0.0253	-0.0745**	0.0252
CU Density^2/1000	0.0019	0.0013	0.0016	0.0013
Founding CB Density	0.0021**	0.0008	0.0017*	0.0008
Founding S&L Density	-0.0194**	0.0038	-0.0172**	0.0038
Founding CU Density	0.0041*	0.0017	0.0025	0.0017
CB Mass Density	-0.0046*	0.0019	-0.0044*	0.0018
S&L Mass Density	-0.0019	0.0020	-0.0026	0.0020
Regulation Interval	-0.0075**	0.0026	-0.0089**	0.0027
# of FDIC Enforcement	0.0034	0.0022	0.0027	0.0022
CB CB Employee Release	0.0001	0.0001	0.0001	0.0001
CB Deposit Release/1000	-0.0348	0.0287	-0.0306	0.0286
S&L Deposit Release/1000	0.0556**	0.0192	0.0572**	0.0191
Congenital Failure Exp/No Discount	-0.0015	0.0010		
Congenital Operationg Exp/No Discount	0.0001	0.0001		
Congenital Failure Exp/Age			-0.0047**	0.0012
Congenital Operating Exp/Age			0.0002	0.0002
Congenital Failure Exp/Age^2				
Congenital Operating Exp/Age^2				
Congenital Failure Exp/SQRT(Age)				
Congenital Operating Exp/SQRT(Age)				
Congenital Failure Exp/Regulation				
Congenital Operating Exp/Regulation				
Congenital Failure Exp/Regulation+Age				
Congenital Operating Exp/Regulation+Age				
Log-Likelihoods	-7464.0441		-7453.4779	

*P<0.05 **P<0.01

TABLE 8 (Continued)
Baseline Model Estimation (Piecewise Exponential Models)

Variables	Coeff	Error	Coeff	Error
0-5 Years	-3.5539	2.0550	-5.4538**	1.9753
5-10 Years	-3.9612*	1.9791	-5.6750**	1.9142
>10 Years	-4.5293*	2.0481	-6.1070**	2.0086
log (Total Asset)	-0.2264**	0.0681	-0.2360**	0.0684
Federal Charter	0.4582**	0.1412	0.4840**	0.1407
Capital Asset Ratio	-0.0003**	0.0001	-0.0003**	0.0001
Nonperforming Loan/Total Loan	-0.0001*	0.0000	-0.0001*	0.0000
Unemployment Rate	0.2768**	0.0468	0.2818**	0.0466
Dow Jones Index	-0.0006**	0.0002	-0.0007**	0.0002
Personal Income	0.1892**	0.0318	0.1770**	0.0316
Bank Prime Loan Rate	-0.1138	0.0904	-0.0842	0.0909
Nonresidential Construction/10^6	0.0137	0.0106	0.0114	0.0107
NCREIF Index	-0.1616**	0.0398	-0.1529**	0.0400
CB Density	-0.0014	0.0013	-0.0018	0.0013
S&L Density	0.0272**	0.0076	0.0315**	0.0076
CU Density	-0.0018	0.0028	-0.0042	0.0027
CB $Density^2$/1000	0.0006	0.0005	0.0007	0.0005
S&L $Density^2$/1000	-0.0702**	0.0250	-0.0780**	0.0253
CU $Density^2$/1000	0.0014	0.0013	0.0017	0.0013
Founding CB Density	0.0015	0.0008	0.0019*	0.0008
Founding S&L Density	-0.0152**	0.0039	-0.0186**	0.0038
Founding CU Density	0.0014	0.0017	0.0032	0.0017
CB Mass Density	-0.0043*	0.0018	-0.0045*	0.0018
S&L Mass Density	-0.0028	0.0020	-0.0023	0.0020
Regulation Interval	-0.0093**	0.0027	-0.0084**	0.0027
# of FDIC Enforcement	0.0027	0.0022	0.0028	0.0022
CB CB Employee Release	0.0001	0.0001	0.0001	0.0001
CB Deposit Release/1000	-0.0283	0.0284	-0.0328	0.0287
S&L Deposit Release/1000	0.0560**	0.0191	0.0574**	0.0192
Congenital Failure Exp/No Discount				
Congenital Operationg Exp/No Discount				
Congenital Failure Exp/Age				
Congenital Operating Exp/Age				
Congenital Failure Exp/Age^2	-0.0057**	0.0015		
Congenital Operating Exp/Age^2	-0.0004	0.0005		
Congenital Failure Exp/SQRT(Age)			-0.0036**	0.0011
Congenital Operating Exp/SQRT(Age)			0.0002	0.0001
Congenital Failure Exp/Regulation				
Congenital Operating Exp/Regulation				
Congenital Failure Exp/Regulation+Age				
Congenital Operating Exp/Regulation+Age				
Log-Likelihoods	-7449.0995		-7457.7250	

*P<0.05 **P<0.01

TABLE 8 (Continued)
Baseline Model Estimation (Piecewise Exponential Models)

[redacted]

Variables	Coeff	Error	Coeff	Error
0-5 Years	-5.0333**	1.8673	-4.8602*	1.9155
5-10 Years	-5.1305**	1.8385	-5.0870**	1.8664
>10 Years	-5.2998**	1.9700	-5.3650**	1.9888
log (Total Asset)	-0.2061**	0.0680	-0.2203**	0.0680
Federal Charter	0.4640**	0.1414	0.4712**	0.1410
Capital Asset Ratio	-0.0003**	0.0001	-0.0003**	0.0001
Nonperforming Loan/Total Loan	-0.0001*	0.0000	-0.0001*	0.0000
Unemployment Rate	0.2768**	0.0472	0.2780**	0.0468
Dow Jones Index	-0.0009**	0.0002	-0.0008**	0.0002
Personal Income	0.1809**	0.0313	0.1819**	0.0316
Bank Prime Loan Rate	-0.0973	0.0901	-0.1006	0.0906
Nonresidential Construction/10^6	0.0120	0.0105	0.0110	0.0106
NCREIF Index	-0.1630**	0.0401	-0.1604**	0.0400
CB Density	-0.0017	0.0013	-0.0017	0.0013
S&L Density	0.0274**	0.0076	0.0294**	0.0076
CU Density	-0.0040	0.0025	-0.0036	0.0026
CB $Density^2$/1000	0.0006	0.0005	0.0006	0.0005
S&L $Density^2$/1000	-0.0677**	0.0249	-0.0731**	0.0251
CU $Density^2$/1000	0.0016	0.0012	0.0016	0.0012
Founding CB Density	0.0017*	0.0008	0.0018*	0.0008
Founding S&L Density	-0.0151**	0.0039	-0.0170**	0.0038
Founding CU Density	0.0029	0.0015	0.0028	0.0016
CB Mass Density	-0.0046*	0.0019	-0.0044*	0.0018
S&L Mass Density	-0.0024	0.0020	-0.0025	0.0020
Regulation Interval	-0.0081**	0.0026	-0.0086**	0.0027
# of FDIC Enforcement	0.0026	0.0022	0.0025	0.0022
CB CB Employee Release	0.0001	0.0001	0.0001	0.0001
CB Deposit Release/1000	-0.0226	0.0283	-0.0279	0.0285
S&L Deposit Release/1000	0.0538**	0.0191	0.0569**	0.0191
Congenital Failure Exp/No Discount				
Congenital Operationg Exp/No Discount				
Congenital Failure Exp/Age				
Congenital Operating Exp/Age				
Congenital Failure Exp/Age^2				
Congenital Operating Exp/Age^2				
Congenital Failure Exp/SQRT(Age)				
Congenital Operating Exp/SQRT(Age)				
Congenital Failure Exp/Regulation	-0.0051**	0.0010		
Congenital Operating Exp/Regulation	0.0003**	0.0001		
Congenital Failure Exp/Regulation+Age			-0.0042**	0.0009
Congenital Operating Exp/Regulation+Age			0.0002*	0.0001
Log-Likelihoods	-7449.9709		-7452.5671	

*P<0.05 **P<0.01

TABLE 9
Maximum-likelihood Estimate of Bank Failures
(Constant Rate Exponential Model: No Discount)

Variables	Coeff	Error	Coeff	Error
Const	-1.0353	3.7138	5.6133	4.9849
Age	0.0727**	0.0185	0.0487**	0.0187
Age^2	-0.0007**	0.0001	-0.0005**	0.0001
log (Total Asset)	-0.3033**	0.0747	-0.3587**	0.0760
Federal Charter	0.4527**	0.1426	0.4205**	0.1428
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2546**	0.0484	0.2692**	0.0487
Dow Jones Index	-0.0006*	0.0002	-0.0001	0.0003
Personal Income	0.1792**	0.0318	0.1952**	0.0320
Bank Prime Loan Rate	-0.1184	0.1042	-0.3236**	0.1092
Nonresidential Construction/10^6	-0.0013	0.0115	-0.0327*	0.0146
NCREIF Index	-0.1268**	0.0461	-0.0367	0.0487
CB Density	-0.0015	0.0014	-0.0016	0.0014
S&L Density	0.0254**	0.0083	0.0166*	0.0083
CU Density	0.0004	0.0032	0.0033	0.0032
CB $Density^2$/1000	0.0008	0.0005	0.0010*	0.0005
S&L $Density^2$/1000	-0.0704**	0.0259	-0.0506*	0.0251
CU $Density^2$/1000	0.0010	0.0013	0.0013	0.0013
Founding CB Density	0.0012	0.0009	0.0005	0.0010
Founding S&L Density	-0.0154**	0.0047	-0.0092	0.0048
Founding CU Density	0.0002	0.0021	-0.0027	0.0022
CB Mass Density	-0.0034*	0.0015	-0.0032*	0.0014
S&L Mass Density	-0.0029	0.0019	-0.0039*	0.0019
Regulation Interval	-0.0092**	0.0032	-0.0077*	0.0035
# of FDIC Enforcement	0.0017	0.0029	-0.0014	0.0037
CB Employee Release	0.0001	0.0001	0.0002**	0.0001
CB Deposit Release/1000	-0.0339	0.0301	-0.0947**	0.0325
S&L Deposit Release/1000	0.0466*	0.0199	0.0441*	0.0201
Congenital Failure Exp/Age^2	-0.0077**	0.0020	0.0045	0.0029
Congenital Operating Exp/Age^2	-0.0005	0.0009	-0.0019	0.0012
CB Failure Exp/No Discount	-0.0002	0.0010	0.0108**	0.0019
CB Near Failure Exp/No Discount	0.0000	0.0002	0.0003	0.0003
S&L Failure Exp/No Discount			-0.0103**	0.0014
S&L Near Failure Exp/No Discount			-0.0031**	0.0008
Log-Likelihoods	-7414.1394		-7381.9068	

*P<0.05 **P<0.01

TABLE 9 (Continued)
Maximum-likelihood Estimate of Bank Failures
(Constant Rate Exponential Model: Age Discount)

[redacted]				
Variables	**Coeff**	**Error**	**Coeff**	**Error**
Const	3.4750	3.4640	9.3329*	3.7386
Age	0.0757**	0.0231	0.0690**	0.0232
Age^2	-0.0008**	0.0002	-0.0007**	0.0001
log (Total Asset)	-0.3102**	0.0741	-0.3387**	0.0751
Federal Charter	0.4570**	0.1421	0.4064**	0.1423
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2739**	0.0477	0.2606**	0.0474
Dow Jones Index	-0.0003	0.0002	-0.0001	0.0002
Personal Income	0.1730**	0.0322	0.1961**	0.0321
Bank Prime Loan Rate	-0.3314**	0.1135	-0.4359**	0.1114
Nonresidential Construction/10^6	-0.0123	0.0128	-0.0255	0.0140
NCREIF Index	-0.0383	0.0472	-0.046	0.0479
CB Density	-0.0020	0.0013	-0.0016	0.0014
S&L Density	0.0312**	0.0081	0.0173*	0.0083
CU Density	-0.0014	0.0031	0.0008	0.0031
CB Density^2/1000	0.0009	0.0005	0.0010*	0.0005
S&L Density^2/1000	-0.0820**	0.0257	-0.0452	0.0256
CU Density^2/1000	0.0015	0.0013	0.0011	0.0013
Founding CB Density	0.0017*	0.0008	0.0007	0.0009
Founding S&L Density	-0.0189**	0.0044	-0.0127**	0.0046
Founding CU Density	0.0013	0.0021	-0.0001	0.0021
CB Mass Density	-0.0034*	0.0015	-0.0034*	0.0015
S&L Mass Density	-0.0018	0.0018	-0.0044*	0.0019
Regulation Interval	-0.0060	0.0031	-0.0100**	0.0033
# of FDIC Enforcement	-0.0040	0.0032	-0.0019	0.0034
CB Employee Release	0.0001	0.0001	0.0003**	0.0001
CB Deposit Release/1000	-0.0328	0.0305	-0.1336**	0.0354
S&L Deposit Release/1000	0.0340	0.0200	0.0664**	0.0208
Congenital Failure Exp/Age^2	-0.0050*	0.0020	-0.0006	0.0022
Congenital Operating Exp/Age^2	-0.0014	0.0008	-0.0024**	0.0009
CB Failure Exp/Age	0.0073**	0.0019	0.0163**	0.0023
CB Near Failure Exp/Age	-0.0014**	0.0004	-0.0012*	0.0007
S&L Failure Exp/Age			-0.0093**	0.0016
S&L Near Failure Exp/Age			-0.0022	0.0015
Log-Likelihoods	**-7405.3896**		**-7383.2986**	

***P<0.05 **P<0.01**

TABLE 9 (Continued)
Maximum-likelihood Estimate of Bank Failures
(Constant Rate Exponential Model: Age Square Discount)

Variables	Coeff	Error	Coeff	Error
Const	5.8135	3.5619	6.7476	3.5747
Age	0.0639**	0.0199	0.0700**	0.0201
Age^2	-0.0007**	0.0001	-0.0007**	0.0001
log (Total Asset)	-0.3225**	0.0741	-0.3268**	0.0745
Federal Charter	0.4391**	0.1419	0.4131**	0.1421
Capital Asset Ratio	-0.0004**	0.0001	-0.0003**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2800**	0.0472	0.2625**	0.0470
Dow Jones Index	-0.0002	0.0002	-0.0003	0.0002
Personal Income	0.1759**	0.0322	0.1941**	0.0322
Bank Prime Loan Rate	-0.4657**	0.1141	-0.4609**	0.1117
Nonresidential Construction/10^6	-0.0236	0.0142	-0.0185	0.0144
NCREIF Index	-0.0012	0.0470	-0.0371	0.0477
CB Density	-0.0019	0.0013	-0.0013	0.0014
S&L Density	0.0285**	0.0080	0.0189*	0.0083
CU Density	-0.0007	0.0031	0.0006	0.0031
CB Density^2/1000	0.0010*	0.0005	0.0012*	0.0005
S&L Density^2/1000	-0.0767**	0.0254	-0.0573*	0.0264
CU Density^2/1000	0.0017	0.0013	0.0013	0.0013
Founding CB Density	0.0014	0.0009	0.0004	0.0009
Founding S&L Density	-0.0169**	0.0044	-0.0123**	0.0047
Founding CU Density	0.0006	0.0020	-0.0001	0.0021
CB Mass Density	-0.0034*	0.0015	-0.0032*	0.0014
S&L Mass Density	-0.0021	0.0018	-0.0042*	0.0019
Regulation Interval	-0.0046	0.0031	-0.0080*	0.0034
# of FDIC Enforcement	-0.0052	0.0034	-0.0024	0.0035
CB Employee Release	0.0001*	0.0001	0.0002**	0.0001
CB Deposit Release/1000	-0.0566	0.0311	-0.1217**	0.0359
S&L Deposit Release/1000	0.0318	0.0199	0.0574**	0.0212
Congenital Failure Exp/Age^2	-0.0043*	0.0019	-0.0030	0.0020
Congenital Operating Exp/Age^2	-0.0015	0.0008	-0.0018*	0.0008
CB Failure Exp/Age^2	0.0138**	0.0024	0.0185**	0.0027
CB Near Failure Exp/Age^2	-0.0023**	0.0004	-0.0031**	0.0008
S&L Failure Exp/Age^2			-0.0047**	0.0016
S&L Near Failure Exp/Age^2			0.0015	0.0018
Log-Likelihoods	**-7393.0080**		**-7381.9757**	

***P<0.05 **P<0.01**

TABLE 9 (Continued)
Maximum-likelihood Estimate of Bank Failures
(Constant Rate Exponential Model: Age SQRT Discount)

[redacted]

Variables	Coeff	Error	Coeff	Error
Const	1.5537	3.5465	9.7679*	4.2160
Age	0.0771**	0.0226	0.0581*	0.0227
Age^2	-0.0008**	0.0001	-0.0006**	0.0001
log (Total Asset)	-0.3048**	0.0743	-0.3538**	0.0757
Federal Charter	0.4597**	0.1424	0.4065**	0.1427
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2651**	0.0481	0.2629**	0.0482
Dow Jones Index	-0.0004	0.0002	-0.0001	0.0003
Personal Income	0.1750**	0.0320	0.1964**	0.0319
Bank Prime Loan Rate	-0.2195*	0.1112	-0.3996**	0.1109
Nonresidential Construction/10^6	-0.0050	0.0119	-0.0326*	0.0141
NCREIF Index	-0.0797	0.0472	-0.0423	0.0484
CB Density	-0.0019	0.0014	-0.0018	0.0014
S&L Density	0.0298**	0.0082	0.0162*	0.0083
CU Density	-0.001	0.0031	0.0021	0.0032
CB $Density^2$/1000	0.0009	0.0005	0.0010*	0.0005
S&L $Density^2$/1000	-0.0792**	0.0259	-0.0421	0.0252
CU $Density^2$/1000	0.0013	0.0013	0.0011	0.0013
Founding CB Density	0.0016	0.0009	0.0007	0.0009
Founding S&L Density	-0.0184**	0.0045	-0.0113*	0.0046
Founding CU Density	0.0012	0.0021	-0.0012	0.0022
CB Mass Density	-0.0034*	0.0015	-0.0033*	0.0015
S&L Mass Density	-0.0022	0.0019	-0.0044*	0.0019
Regulation Interval	-0.0079*	0.0032	-0.0106**	0.0033
# of FDIC Enforcement	-0.0017	0.0031	-0.0016	0.0035
CB Employee Release	0.0001	0.0001	0.0003**	0.0001
CB Deposit Release/1000	-0.0294	0.0303	-0.1290**	0.0344
S&L Deposit Release/1000	0.0407*	0.0200	0.0630**	0.0204
Congenital Failure Exp/Age^2	-0.0061**	0.0020	0.0020	0.0025
Congenital Operating Exp/Age^2	-0.0012	0.0009	-0.0025*	0.0010
CB Failure Exp/SQRT(Age)	0.0031*	0.0015	0.0145**	0.0022
CB Near Failure Exp/SQRT(Age)	-0.0007*	0.0003	-0.0001	0.0005
S&L Failure Exp/SQRT(Age)			-0.0116**	0.0015
S&L Near Failure Exp/SQRT(Age)			-0.0039**	0.0012
Log-Likelihoods	-7411.9271		-7381.7149	

*P<0.05 **P<0.01

TABLE 9 (Continued)
Maximum-likelihood Estimate of Bank Failures
(Constant Rate Exponential Model: Regulation Discount)

[redacted]

Variables	Coeff	Error	Coeff	Error
Const	3.9992	3.4980	8.3552*	3.7832
Age	0.0424**	0.0150	0.0418**	0.0149
Age^2	-0.0006**	0.0001	-0.0005**	0.0001
log (Total Asset)	-0.3291**	0.0751	-0.3467**	0.0758
Federal Charter	0.4324**	0.1421	0.4110**	0.1425
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2742**	0.0473	0.2686**	0.0486
Dow Jones Index	-0.0004	0.0003	-0.0007*	0.0003
Personal Income	0.1831**	0.0321	0.1856**	0.0321
Bank Prime Loan Rate	-0.4053**	0.1161	-0.4653**	0.1189
Nonresidential Construction/10^6	-0.0008	0.0135	0.0018	0.0137
NCREIF Index	-0.0434	0.0456	-0.0527	0.0495
CB Density	-0.0016	0.0013	-0.0020	0.0014
S&L Density	0.0254**	0.0080	0.0221**	0.0081
CU Density	0.0005	0.0031	0.0018	0.0031
CB $Density^2$/1000	0.0009	0.0005	0.0010*	0.0005
S&L $Density^2$/1000	-0.0691**	0.0256	-0.0607*	0.0257
CU $Density^2$/1000	0.0015	0.0013	0.0014	0.0013
Founding CB Density	0.0011	0.0009	0.0011	0.0009
Founding S&L Density	-0.0155**	0.0044	-0.0132 **	0.0045
Founding CU Density	-0.0002	0.0020	-0.0013	0.0021
CB Mass Density	-0.0035*	0.0015	-0.0036*	0.0015
S&L Mass Density	-0.0027	0.0018	-0.0037	0.0019
Regulation Interval	-0.0095**	0.0034	-0.0176**	0.0043
# of FDIC Enforcement	-0.0037	0.0032	-0.0023	0.0032
CB Employee Release	0.0002**	0.0001	0.0002**	0.0001
CB Deposit Release/1000	-0.0785*	0.0315	-0.1216**	0.0358
S&L Deposit Release/1000	0.0421*	0.0197	0.0580**	0.0209
Congenital Failure Exp/Age^2	-0.0063**	0.0020	-0.0052**	0.0019
Congenital Operating Exp/Age^2	-0.0013	0.0009	-0.0013	0.0009
CB Failure Exp/Regulation	0.0065**	0.0014	0.0093**	0.0015
CB Near Failure Exp/Regulation	-0.0006**	0.0002	0.0004	0.0004
S&L Failure Exp/Regulation			-0.0045**	0.0010
S&L Near Failure Exp/Regulation			-0.0034**	0.0011
Log-Likelihoods	-7402.1551		-7389.4183	

*P<0.05 **P<0.01

TABLE 9 (Continued)
Maximum-likelihood Estimate of Bank Failures
(Constant Rate Exponential Model: Regulation+Age Discount)

Variables	Coeff	Error	Coeff	Error
Const	1.3301	3.4268	5.3626	3.6042
Age	0.0355	0.0185	0.0297	0.0183
Age^2	-0.0005**	0.0001	-0.0005**	0.0001
log (Total Asset)	-0.3192**	0.0749	-0.3304**	0.0752
Federal Charter	0.4544**	0.1420	0.4266**	0.1418
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2737**	0.0478	0.2594*	0.0480
Dow Jones Index	-0.0004	0.0002	-0.0002	0.0003
Personal Income	0.1756**	0.0322	0.1958**	0.0323
Bank Prime Loan Rate	-0.2726*	0.1100	-0.2877**	0.1090
Nonresidential Construction/10^6	-0.0038	0.0128	-0.0086	0.0143
NCREIF Index	-0.0684	0.0458	-0.1065*	0.0472
CB Density	-0.0017	0.0014	-0.0011	0.0014
S&L Density	0.0299**	0.0081	0.0199*	0.0084
CU Density	-0.0001	0.0031	0.0016	0.0031
CB $Density^2$/1000	0.0009	0.0005	0.0012*	0.0005
S&L $Density^2$/1000	-0.0822**	0.0260	-0.0679*	0.0274
CU $Density^2$/1000	0.0016	0.0013	0.0015	0.0013
Founding CB Density	0.0014	0.0009	0.0002	0.0010
Founding S&L Density	-0.0176**	0.0044	-0.0113*	0.0048
Founding CU Density	0.0002	0.0020	-0.0011	0.0021
CB Mass Density	-0.0035*	0.0015	-0.0033*	0.0015
S&L Mass Density	-0.0022	0.0018	-0.0048*	0.0019
Regulation Interval	-0.0077*	0.0032	-0.0133**	0.0040
# of FDIC Enforcement	-0.0022	0.0032	0.0019	0.0037
CB Employee Release	0.0001	0.0001	0.0002**	0.0001
CB Deposit Release/1000	-0.0502	0.0307	-0.1326**	0.0359
S&L Deposit Release/1000	0.0371	0.0199	0.0620**	0.0213
Congenital Failure Exp/Age^2	-0.0065**	0.0020	-0.0038	0.0021
Congenital Operating Exp/Age^2	-0.0010	0.0009	-0.0018*	0.0009
CB Failure Exp/Regulation+Age	0.0047**	0.0014	0.0105**	0.0018
CB Near Failure Exp/Regulation+Age	-0.0003	0.0002	-0.0009*	0.0005
S&L Failure Exp/Regulation+Age			-0.0053**	0.0011
S&L Near Failure Exp/Regulation+Age			0.0010	0.0011
Log-Likelihoods	-7408.2386		-7387.5319	

*P<0.05 **P<0.01

TABLE 10
Maximum-likelihood Estimate of Bank Failures
(Piecewise Exponential Model: No Discount)

[redacted]				
Variables	**Coeff**	**Error**	**Coeff**	**Error**
0-5 Years	-4.3539	3.4215	4.6649	4.7236
5-10 Years	-4.8085	3.4095	4.3916	4.7125
>10 Years	-5.1839	3.5077	4.8825	4.8243
log (Total Asset)	-0.2416**	0.0695	-0.3214**	0.0721
Federal Charter	0.4696**	0.1411	0.4284**	0.1418
Capital Asset Ratio	-0.0003**	0.0001	-0.0003**	0.0001
Nonperforming Loan/Total Loan	-0.0001*	0.0000	-0.0001	0.0000
Unemployment Rate	0.2834**	0.0467	0.2991**	0.0470
Dow Jones Index	-0.0006*	0.0002	-0.0001	0.0003
Personal Income	0.1831**	0.0323	0.2047**	0.0324
Bank Prime Loan Rate	-0.1227	0.1049	-0.3603**	0.1093
Nonresidential Construction/10^6	0.0118	0.0107	-0.0263	0.0139
NCREIF Index	-0.1386**	0.0434	-0.0211	0.0467
CB Density	-0.0016	0.0013	-0.0014	0.0013
S&L Density	0.0312**	0.0080	0.0186*	0.0080
CU Density	-0.0024	0.0029	0.0013	0.0030
CB Density^2/1000	0.0007	0.0005	0.0010*	0.0005
S&L Density^2/1000	-0.0804**	0.0259	-0.0539*	0.0248
CU Density^2/1000	0.0016	0.0013	0.0018	0.0013
Founding CB Density	0.0017*	0.0008	0.0006	0.0009
Founding S&L Density	-0.0178**	0.0041	-0.0095*	0.0045
Founding CU Density	0.0018	0.0018	-0.0016	0.0020
CB Mass Density	-0.0044*	0.0018	-0.0037*	0.0016
S&L Mass Density	-0.0023	0.0020	-0.0039*	0.0019
Regulation Interval	-0.0073*	0.0031	-0.0071*	0.0034
# of FDIC Enforcement	0.0017	0.0026	-0.0006	0.0034
CB Employee Release	0.0001	0.0001	0.0002**	0.0001
CB Deposit Release/1000	-0.0302	0.0293	-0.1011**	0.0321
S&L Deposit Release/1000	0.0524**	0.0192	0.0468*	0.0199
Congenital Failure Exp/Age^2	-0.0054**	0.0017	0.0072**	0.0027
Congenital Operating Exp/Age^2	-0.0003	0.0008	-0.0020	0.0011
CB Failure Exp/No Discount	0.0017*	0.0010	0.0138**	0.0018
CB Near Failure Exp/No Discount	-0.0002	0.0002	0.0001	0.0003
S&L Failure Exp/No Discount			-0.0118**	0.0013
S&L Near Failure Exp/No Discount			-0.0033**	0.0008
Log-Likelihoods	**-7446.7668**		**-7396.9677**	

***P<0.05 **P<0.01**

TABLE 10 (Continued)
Maximum-likelihood Estimate of Bank Failures
(Piecewise Exponential Model: Age Discount)

[redacted]				
Variables	**Coeff**	**Error**	**Coeff**	**Error**
0-5 Years	-5.1892	2.9015	1.3393	3.2245
5-10 Years	-5.5757*	2.8284	1.1423	3.1657
>10 Years	-4.7608	2.7930	1.5785	3.0963
log (Total Asset)	-0.3074**	0.0723	-0.3416**	0.0739
Federal Charter	0.4738**	0.1409	0.4257**	0.1413
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2968**	0.0467	0.2867**	0.0464
Dow Jones Index	-0.0005*	0.0002	-0.0004	0.0002
Personal Income	0.1762**	0.0328	0.1983**	0.0325
Bank Prime Loan Rate	-0.2257*	0.1119	-0.3837**	0.1141
Nonresidential Construction/10^6	-0.0069	0.0122	-0.0184	0.0133
NCREIF Index	-0.0524	0.0469	-0.0529	0.0477
CB Density	-0.0016	0.0013	-0.0015	0.0013
S&L Density	0.0342**	0.0079	0.0213**	0.0080
CU Density	-0.0012	0.0030	0.0005	0.0030
CB Density^2/1000	0.0009	0.0005	0.0010*	0.0005
S&L Density^2/1000	-0.0929**	0.0261	-0.0542*	0.0257
CU Density^2/1000	0.0021	0.0013	0.0017	0.0013
Founding CB Density	0.0015	0.0008	0.0007	0.0009
Founding S&L Density	-0.0193**	0.0041	-0.0140**	0.0043
Founding CU Density	0.0006	0.0019	-0.0004	0.0019
CB Mass Density	-0.0040*	0.0017	-0.0039*	0.0016
S&L Mass Density	-0.0020	0.0019	-0.0045*	0.0020
Regulation Interval	-0.0021	0.0029	-0.0068*	0.0031
# of FDIC Enforcement	0.0004	0.0029	0.0023	0.0031
CB Employee Release	0.0001*	0.0001	0.0003**	0.0001
CB Deposit Release/1000	-0.052	0.0301	-0.1505**	0.0350
S&L Deposit Release/1000	0.0387*	0.0196	0.0729**	0.0207
Congenital Failure Exp/Age^2	-0.0065**	0.0019	-0.0020	0.0021
Congenital Operating Exp/Age^2	0.0005	0.0007	-0.0005	0.0007
CB Failure Exp/Age	0.0091**	0.0018	0.0179**	0.0022
CB Near Failure Exp/Age	-0.0007*	0.0003	-0.0002	0.0006
S&L Failure Exp/Age			-0.0101**	0.0016
S&L Near Failure Exp/Age			-0.0032*	0.0015
Log-Likelihoods	-7422.4870		-7398.5784	

$^*P<0.05$ $^{**}P<0.01$

TABLE 10 (Continued)
Maximum-likelihood Estimate of Bank Failures
(Piecewise Exponential Model: Age Square Discount)

[redacted]

Variables	Coeff	Error	Coeff	Error
0-5 Years	0.4085	2.7034	1.6776	2.7849
5-10 Years	0.0735	2.6281	1.4790	2.7177
>10 Years	1.1271	2.6185	2.2584	2.6929
log (Total Asset)	-0.3199**	0.0725	-0.3227**	0.0727
Federal Charter	0.4498**	0.1409	0.4337**	0.1409
Capital Asset Ratio	-0.0004**	0.0001	-0.0003**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.3016**	0.0464	0.2885**	0.0460
Dow Jones Index	-0.0005*	0.0002	-0.0005*	0.0002
Personal Income	0.1846**	0.0327	0.2012**	0.0328
Bank Prime Loan Rate	-0.4261**	0.1160	-0.4171**	0.1147
Nonresidential Construction/10^6	-0.0193	0.0133	-0.0146	0.0136
NCREIF Index	-0.0011	0.0472	-0.0362	0.0479
CB Density	-0.0015	0.0013	-0.0011	0.0013
S&L Density	0.0297**	0.0078	0.0221**	0.0081
CU Density	-0.0007	0.0030	0.0001	0.0030
CB Density^2/1000	0.0010*	0.0005	0.0011*	0.0005
S&L Density^2/1000	-0.0822**	0.0256	-0.0657*	0.0264
CU Density^2/1000	0.0022	0.0013	0.002	0.0013
Founding CB Density	0.0011	0.0008	0.0003	0.0009
Founding S&L Density	-0.0165**	0.0041	-0.0130**	0.0044
Founding CU Density	0.0000	0.0019	-0.0003	0.0019
CB Mass Density	-0.0039*	0.0016	-0.0036*	0.0016
S&L Mass Density	-0.0025	0.0019	-0.0044*	0.0020
Regulation Interval	-0.0032	0.0028	-0.0066*	0.0031
# of FDIC Enforcement	-0.0010	0.0031	0.0013	0.0032
CB Employee Release	0.0002**	0.0001	0.0003**	0.0001
CB Deposit Release/1000	-0.0759*	0.0307	-0.1333**	0.0354
S&L Deposit Release/1000	0.0381	0.0196	0.0616**	0.0210
Congenital Failure Exp/Age^2	-0.0061**	0.0019	-0.0046*	0.0020
Congenital Operating Exp/Age^2	-0.0001	0.0006	-0.0005	0.0006
CB Failure Exp/Age^2	0.0167**	0.0023	0.0208**	0.0026
CB Near Failure Exp/Age^2	-0.0017**	0.0004	-0.0022**	0.0007
S&L Failure Exp/Age^2			-0.0043**	0.0016
S&L Near Failure Exp/Age^2			0.0012	0.0017
Log-Likelihoods	**-7407.7129**		**-7398.1788**	

***P<0.05 **P<0.01**

TABLE 10 (Continued)
Maximum-likelihood Estimate of Bank Failures
(Piecewise Exponential Model: Age SQRT Discount)

[redacted]

Variables	Coeff	Error	Coeff	Error
0-5 Years	-7.9940*	3.2392	1.2307	3.9928
5-10 Years	-8.4466**	3.1867	1.0107	3.9501
>10 Years	-8.2059**	3.1745	1.3395	3.8938
log (Total Asset)	-0.2863**	0.0715	-0.3469**	0.0740
Federal Charter	0.4801**	0.1408	0.4212**	0.1419
Capital Asset Ratio	-0.0003**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001*	0.0000	-0.0001	0.0000
Unemployment Rate	0.2920**	0.0466	0.2902**	0.0469
Dow Jones Index	-0.0006**	0.0002	-0.0004	0.0002
Personal Income	0.1748**	0.0326	0.1984**	0.0323
Bank Prime Loan Rate	-0.1096	0.1079	-0.3816**	0.1127
Nonresidential Construction/10^6	0.0033	0.0114	-0.0222	0.0135
NCREIF Index	-0.1033*	0.0457	-0.0463	0.0474
CB Density	-0.0016	0.0013	-0.0018	0.0013
S&L Density	0.0344**	0.0079	0.0196*	0.0080
CU Density	-0.0015	0.0029	0.0014	0.0030
CB $Density^2$/1000	0.0008	0.0005	0.0010*	0.0005
S&L $Density^2$/1000	-0.0917**	0.0261	-0.0494*	0.0252
CU $Density^2$/1000	0.0019	0.0013	0.0017	0.0013
Founding CB Density	0.0016*	0.0008	0.0008	0.0009
Founding S&L Density	-0.0195**	0.0041	-0.0123**	0.0043
Founding CU Density	0.0010	0.0018	-0.0013	0.0020
CB Mass Density	-0.0042*	0.0017	-0.0039*	0.0016
S&L Mass Density	-0.0020	0.0019	-0.0043*	0.0020
Regulation Interval	-0.0029	0.0030	-0.0068*	0.0033
# of FDIC Enforcement	0.0020	0.0028	0.0025	0.0033
CB Employee Release	0.0001	0.0001	0.0003**	0.0001
CB Deposit Release/1000	-0.0441	0.0298	-0.1448**	0.0340
S&L Deposit Release/1000	0.0450*	0.0195	0.0687**	0.0204
Congenital Failure Exp/Age^2	-0.0065**	0.0019	0.0016	0.0023
Congenital Operating Exp/Age^2	0.0008	0.0008	-0.0005	0.0009
CB Failure Exp/SQRT(Age)	0.0045**	0.0014	0.0163**	0.0021
CB Near Failure Exp/SQRT(Age)	-0.0002	0.0003	0.0006	0.0005
S&L Failure Exp/SQRT(Age)			-0.0130**	0.0015
S&L Near Failure Exp/SQRT(Age)			-0.0050**	0.0012
Log-Likelihoods	-7434.7260		-7395.5857	

*P<0.05 **P<0.01

TABLE 10 (Continued)
Maximum-likelihood Estimate of Bank Failures
(Piecewise Exponential Model: Regulation Discount)

[redacted]

Variables	Coeff	Error	Coeff	Error
0-5 Years	0.0453	2.3642	5.4538	2.8472
5-10 Years	-0.2817	2.2934	5.3093	2.7977
>10 Years	0.1292	2.3503	5.5056*	2.8091
log (Total Asset)	-0.3124**	0.0723	-0.3304**	0.0729
Federal Charter	0.4380**	0.1410	0.4134**	0.1417
Capital Asset Ratio	-0.0003**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.3030**	0.0457	0.2995**	0.0472
Dow Jones Index	-0.0008**	0.0002	-0.0010**	0.0002
Personal Income	0.1898**	0.0325	0.1914**	0.0323
Bank Prime Loan Rate	-0.4713**	0.1127	-0.5484**	0.1172
Nonresidential Construction/10^6	0.0173	0.0126	0.0172	0.0130
NCREIF Index	-0.0267	0.0450	-0.0324	0.0484
CB Density	-0.0013	0.0013	-0.0019	0.0013
S&L Density	0.0280**	0.0078	0.0244**	0.0079
CU Density	-0.0006	0.0029	0.0004	0.0029
CB Density^2/1000	0.0009	0.0005	0.0010*	0.0005
S&L Density^2/1000	-0.0753**	0.0255	-0.0652*	0.0255
CU Density^2/1000	0.0020	0.0013	0.0019	0.0013
Founding CB Density	0.0010	0.0008	0.0011	0.0008
Founding S&L Density	-0.0158**	0.0040	-0.0134**	0.0041
Founding CU Density	0.0001	0.0018	-0.0007	0.0019
CB Mass Density	-0.0042*	0.0017	-0.0042*	0.0018
S&L Mass Density	-0.0026	0.0019	-0.0034	0.0020
Regulation Interval	-0.0100**	0.0029	-0.0180**	0.0038
# of FDIC Enforcement	-0.0013	0.0028	-0.0007	0.0029
CB Employee Release	0.0002**	0.0001	0.0003**	0.0001
CB Deposit Release/1000	-0.0969**	0.0307	-0.1365**	0.0352
S&L Deposit Release/1000	0.0476*	0.0192	0.0625**	0.0206
Congenital Failure Exp/Age^2	-0.0064**	0.0018	-0.0050**	0.0018
Congenital Operating Exp/Age^2	-0.0002	0.0005	-0.0004	0.0005
CB Failure Exp/Regulation	0.0081**	0.0013	0.0109**	0.0014
CB Near Failure Exp/Regulation	-0.0007**	0.0002	0.0004	0.0004
S&L Failure Exp/Regulation			-0.0046**	0.0010
S&L Near Failure Exp/Regulation			-0.0036**	0.0010
Log-Likelihoods	-7419.3379		-7403.9911	

*P<0.05 **P<0.01

TABLE 10 (Continued)
Maximum-likelihood Estimate of Bank Failures
(Piecewise Exponential Model: Regulation+Age Discount)

[redacted]				
Variables	Coeff	Error	Coeff	Error
0-5 Years	-5.9562*	2.5548	-2.0473	2.7669
5-10 Years	-6.3023*	2.4767	-2.2003	2.7051
>10 Years	-5.6092*	2.4884	-1.4132	2.7197
log (Total Asset)	-0.3236**	0.0734	-0.3371**	0.0741
Federal Charter	0.4682**	0.1410	0.4443**	0.1409
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.3017**	0.0465	0.2876**	0.0465
Dow Jones Index	-0.0008**	0.0002	-0.0007**	0.0002
Personal Income	0.1768**	0.0327	0.1961**	0.0327
Bank Prime Loan Rate	-0.2872**	0.1080	-0.3097**	0.1095
Nonresidential Construction/10^6	0.0103	0.0123	0.0065	0.0138
NCREIF Index	-0.0512	0.0457	-0.0857	0.0468
CB Density	-0.0015	0.0013	-0.0010	0.0014
S&L Density	0.0344**	0.0079	0.0250**	0.0083
CU Density	-0.0008	0.0030	0.0004	0.0030
CB $Density^2$/1000	0.0009	0.0005	0.0012*	0.0005
S&L $Density^2$/1000	-0.0951**	0.0262	-0.0800**	0.0274
CU $Density^2$/1000	0.0021	0.0013	0.0021	0.0013
Founding CB Density	0.0013	0.0008	0.0003	0.0009
Founding S&L Density	-0.0190**	0.0041	-0.0132**	0.0046
Founding CU Density	0.0002	0.0019	-0.0007	0.0019
CB Mass Density	-0.0042*	0.0017	-0.0038*	0.0016
S&L Mass Density	-0.002	0.0019	-0.0047*	0.0020
Regulation Interval	-0.0054	0.0028	-0.0112**	0.0036
# of FDIC Enforcement	0.0012	0.0029	0.0059	0.0034
CB Employee Release	0.0002**	0.0001	0.0003**	0.0001
CB Deposit Release/1000	-0.0689*	0.0301	-0.1496**	0.0351
S&L Deposit Release/1000	0.0414*	0.0195	0.0676**	0.0210
Congenital Failure Exp/Age^2	-0.0075**	0.0019	-0.0047*	0.0021
Congenital Operating Exp/Age^2	0.0009	0.0006	0.0002	0.0007
CB Failure Exp/Regulation+Age	0.0063**	0.0013	0.0121**	0.0017
CB Near Failure Exp/Regulation+Age	-0.0003	0.0002	-0.0008*	0.0005
S&L Failure Exp/Regulation+Age			-0.0055**	0.0011
S&L Near Failure Exp/Regulation+Age			0.0011	0.0011
Log-Likelihoods	-7423.2746		-7401.2294	

*P<0.05 **P<0.01

TABLE 11
Local-Nonlocal Failure and Near-Failure Experience (Constant Rate Exponential Models)

[redacted]						
Variables	**Coeff**	**Error**	**Coeff**	**Error**	**Coeff**	**Error**
Const	-0.1214	3.7004	6.1991	4.9714	6.4541	5.1104
Age	0.0720**	0.0185	0.0477*	0.0187	0.0494**	0.0185
Age^2	-0.0007**	0.0001	-0.0005**	0.0001	-0.0005**	0.0001
log (Total Asset)	-0.3162**	0.0742	-0.3816**	0.0751	-0.3714**	0.0752
Federal Charter	0.4368**	0.1430	0.4192**	0.1434	0.4298**	0.1451
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000	0.0000	0.0000
Unemployment Rate	0.2189**	0.0514	0.2191**	0.0520	0.1921**	0.0576
Dow Jones Index	-0.0005*	0.0002	-0.0002	0.0003	-0.0001	0.0003
Personal Income	0.1667**	0.0321	0.1865**	0.0319	0.1421**	0.0382
Bank Prime Loan Rate	-0.1342	0.1040	-0.3320**	0.1087	-0.3361**	0.1088
Nonresidential Construction/10^6	-0.0011	0.0115	-0.0339*	0.0146	-0.0349*	0.0149
NCREIF Index	-0.1277**	0.0467	-0.0370	0.0493	-0.0234	0.0495
CB Density	-0.0002	0.0014	-0.0005	0.0014	0.0007	0.0015
S&L Density	0.0194*	0.0090	0.0071	0.0090	-0.0048	0.0098
CU Density	0.0013	0.0032	0.0048	0.0032	0.0076*	0.0034
CB Density^2/1000	0.0001	0.0005	0.0002	0.0005	-0.0001	0.0006
S&L Density^2/1000	-0.0510	0.0274	-0.0208	0.0266	0.0042	0.0271
CU Density^2/1000	0.0007	0.0013	0.0008	0.0014	-0.0002	0.0014
Founding CB Density	0.0014	0.0009	0.0012	0.0010	0.0001	0.0011
Founding S&L Density	-0.0155**	0.0047	-0.0085	0.0048	-0.0025	0.0050
Founding CU Density	-0.0003	0.0021	-0.0035	0.0022	-0.0047*	0.0023
CB Mass Density	-0.0035*	0.0015	-0.0034*	0.0015	-0.0022	0.0013
S&L Mass Density	-0.0027	0.0019	-0.0037	0.0019	-0.0060**	0.0023
Regulation Interval	-0.0094**	0.0032	-0.0072*	0.0035	-0.0067	0.0035
# of FDIC Enforcement	0.0016	0.0030	-0.0017	0.0037	-0.0021	0.0038
CB Employee Release	0.0000	0.0001	0.0002*	0.0001	0.0002**	0.0001
CB Deposit Release/1000	-0.0265	0.0299	-0.0846**	0.0325	-0.1252**	0.0345
S&L Deposit Release/1000	0.0469*	0.0197	0.0433*	0.0199	0.0639**	0.0204
Congenital Failure Exp/Age^2	-0.0074**	0.0020	0.0046	0.0029	0.0043	0.0029
Congenital Operating Exp/Age^2	-0.0007	0.0009	-0.0018	0.0012	-0.0017	0.0012
CB Local Failure Exp/No Discount	-0.0001	0.0013	0.0099**	0.0020	0.0123**	0.0024
CB Nonlocal Failure Exp/No Discount	-0.0003	0.0010	0.0105**	0.0019	0.0096**	0.0019
CB Local Near Failure Exp/No Discount	-0.0009*	0.0004	-0.0005	0.0005	-0.0006	0.0004
CB Nonlocal Near Failure Exp/No Discount	0.0001	0.0002	0.0006*	0.0004	0.0007*	0.0004
S&L Failure Exp/No Discount			-0.0104**	0.0014		
S&L Near Failure Exp/No Discount			-0.0037**	0.0008		
S&L Local Failure Exp/No Discount					-0.0216**	0.0040
S&L Nonlocal Failure Exp/No Discount					-0.0084**	0.0015
S&L Local Near Failure Exp/No Discount					-0.0067**	0.0017
S&L Nonlocal Near Failure Exp/No Discount					-0.0032**	0.0009
Loglikihood	**-7407.1132**		**-7373.4093**		**-7364.9292**	

***P<0.05 **P<0.01**

TABLE 11 (Continued)
Local-Nonlocal Failure and Near-Failure Experience (Constant Rate Exponential Models)

[redacted]

Variables	Coeff	Error	Coeff	Error	Coeff	Error
Const	4.4424	3.4888	10.0098**	3.7588	8.9930*	3.8516
Age	0.0726**	0.0231	0.0649**	0.0232	0.0664**	0.0232
Age^2	-0.0007**	0.0002	-0.0006**	0.0001	-0.0006**	0.0001
log (Total Asset)	-0.3198**	0.0738	-0.3525**	0.0751	-0.3456**	0.0756
Federal Charter	0.4204**	0.1427	0.3830**	0.1429	0.3963**	0.1436
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000	0.0000	0.0000
Unemployment Rate	0.2296**	0.0512	0.2148**	0.0506	0.2266**	0.0559
Dow Jones Index	-0.0002	0.0002	-0.0001	0.0002	-0.0002	0.0002
Personal Income	0.1486**	0.0330	0.1701**	0.0329	0.1788**	0.0367
Bank Prime Loan Rate	-0.3527**	0.1129	-0.4503**	0.1115	-0.4471**	0.1113
Nonresidential Construction/10^6	-0.0134	0.0130	-0.0263	0.0140	-0.0257	0.0141
NCREIF Index	-0.0309	0.0484	-0.0391	0.0490	-0.0309	0.0492
CB Density	0.0001	0.0014	0.0000	0.0014	0.0011	0.0015
S&L Density	0.0242**	0.0087	0.0104	0.0090	0.0074	0.0095
CU Density	-0.0001	0.0032	0.0020	0.0032	0.0035	0.0033
CB $Density^2$/1000	0.0000	0.0006	0.0002	0.0006	-0.0002	0.0006
S&L $Density^2$/1000	-0.0582*	0.0274	-0.0197	0.0274	-0.0145	0.0279
CU $Density^2$/1000	0.0008	0.0014	0.0004	0.0014	0.0002	0.0014
Founding CB Density	0.0016	0.0009	0.0009	0.0009	0.0002	0.0010
Founding S&L Density	-0.0191**	0.0044	-0.0132**	0.0045	-0.0105*	0.0046
Founding CU Density	0.0008	0.0021	-0.0005	0.0021	-0.0013	0.0022
CB Mass Density	-0.0034*	0.0014	-0.0034*	0.0015	-0.0023	0.0014
S&L Mass Density	-0.0016	0.0018	-0.0038*	0.0019	-0.0076**	0.0023
Regulation Interval	-0.0059	0.0031	-0.0096**	0.0032	-0.0088**	0.0033
# of FDIC Enforcement	-0.0045	0.0033	-0.0026	0.0034	-0.0035	0.0035
CB Employee Release	0.0001	0.0001	0.0002**	0.0001	0.0002**	0.0001
CB Deposit Release/1000	-0.0312	0.0307	-0.1209**	0.0354	-0.1336**	0.0373
S&L Deposit Release/1000	0.0326	0.0199	0.0613**	0.0206	0.0691**	0.0220
Congenital Failure Exp/Age^2	-0.0045*	0.0020	-0.0006	0.0021	-0.0004	0.0021
Congenital Operating Exp/Age^2	-0.0016	0.0008	-0.0024**	0.0009	-0.0023*	0.0009
CB Local Failure Exp/Age	0.0097**	0.0022	0.0168**	0.0025	0.0158**	0.0034
CB Nonlocal Failure Exp/Age	0.0068**	0.0019	0.0149**	0.0024	0.0147**	0.0024
CB Local Near Failure/Age	-0.0046**	0.0009	-0.0038**	0.0010	-0.0038**	0.0010
CB Nonlocal Near Failure/Age	-0.0010*	0.0004	-0.0005	0.0007	-0.0004	0.0007
S&L Failure Exp/Age			-0.0090**	0.0016		
S&L Near Failure Exp/Age			-0.0028*	0.0015		
S&L Local Failure Exp/Age					-0.0123*	0.0065
S&L Nonlocal Failure Exp/Age					-0.0081**	0.0019
S&L Local Near Failure/Age					-0.0135**	0.0042
S&L Nonlocal Near Failure Exp/Age					-0.0017	0.0016
Loglikihood	-7384.7590		-7365.4820		-7358.1443	

*P<0.05 **P<0.01

TABLE 11 (Continued)
Local-Nonlocal Failure and Near-Failure Experience (Constant Rate Exponential Models)

[redacted]

Variables	Coeff	Error	Coeff	Error	Coeff	Error
Const	6.6301	3.5996	7.4519*	3.6099	6.3553	3.6540
Age	0.0612**	0.0199	0.0659**	0.0201	0.0664**	0.0200
Age^2	-0.0007**	0.0001	-0.0007**	0.0001	-0.0007**	0.0001
log (Total Asset)	-0.3293**	0.0740	-0.3331**	0.0746	-0.3256**	0.0751
Federal Charter	0.4016**	0.1427	0.3866**	0.1427	0.3953**	0.1430
Capital Asset Ratio	-0.0003**	0.0001	-0.0003**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2240**	0.0506	0.2138**	0.0502	0.2364**	0.0536
Dow Jones Index	-0.0002	0.0002	-0.0002	0.0002	-0.0003	0.0002
Personal Income	0.1492**	0.0331	0.1649**	0.0333	0.1846**	0.0352
Bank Prime Loan Rate	-0.4700**	0.1130	-0.4707**	0.1116	-0.4719**	0.1114
Nonresidential Construction/10^6	-0.0250	0.0144	-0.0210	0.0145	-0.0206	0.0146
NCREIF Index	0.0023	0.0482	-0.0266	0.0487	-0.0196	0.0490
CB Density	0.0002	0.0015	0.0003	0.0015	0.0012	0.0015
S&L Density	0.0187*	0.0086	0.0118	0.0090	0.0118	0.0093
CU Density	0.0012	0.0032	0.0021	0.0032	0.0027	0.0033
CB $Density^2$/1000	0.0000	0.0006	0.0002	0.0006	0.0000	0.0006
S&L $Density^2$/1000	-0.0442	0.0270	-0.0288	0.0279	-0.032	0.0282
CU $Density^2$/1000	0.0006	0.0014	0.0004	0.0014	0.0004	0.0014
Founding CB Density	0.0014	0.0009	0.0007	0.0009	0.0002	0.0010
Founding S&L Density	-0.0163**	0.0044	-0.0130**	0.0046	-0.0112*	0.0047
Founding CU Density	-0.0002	0.0021	-0.0006	0.0021	-0.0010	0.0021
CB Mass Density	-0.0032*	0.0014	-0.0032*	0.0014	-0.0023	0.0014
S&L Mass Density	-0.0021	0.0018	-0.0036	0.0019	-0.0069**	0.0021
Regulation Interval	-0.0044	0.0031	-0.0070*	0.0033	-0.0067*	0.0033
# of FDIC Enforcement	-0.0056	0.0035	-0.0033	0.0036	-0.0038	0.0036
CB Employee Release	0.0001	0.0001	0.0002**	0.0001	0.0002**	0.0001
CB Deposit Release/1000	-0.0640*	0.0317	-0.1126**	0.0360	-0.1090**	0.0370
S&L Deposit Release/1000	0.0310	0.0197	0.0507*	0.0210	0.0481*	0.0223
Congenital Failure Exp/Age^2	-0.0039*	0.0019	-0.0030	0.0020	-0.0027	0.0020
Congenital Operating Exp/Age^2	-0.0016	0.0008	-0.0018*	0.0008	-0.0017*	0.0009
CB Local Failure Exp/Age^2	0.0166**	0.0027	0.0195**	0.0029	0.0152**	0.0039
CB Nonlocal Failure Exp/Age^2	0.0123**	0.0024	0.0160**	0.0027	0.0163**	0.0028
CB Local Near Failure/Age^2	-0.0074**	0.0013	-0.0072**	0.0014	-0.0070**	0.0014
CB Nonlocal Near Failure/Age^2	-0.0015**	0.0005	-0.0020**	0.0008	-0.0017*	0.0008
S&L Failure Exp/Age^2			-0.0039**	0.0016		
S&L Near Failure Exp/Age^2			0.0007	0.0018		
S&L Local Failure Exp/Age^2					0.0007	0.0070
S&L Nonlocal Failure Exp/Age^2					-0.0047*	0.0020
S&L Local Near Failure Exp/Age^2					-0.0169**	0.0061
S&L Nonlocal Near Failure/Age^2					0.0020	0.0018
Log-Likelihoods	-7367.2099		-7360.3711		-7349.8142	

*P<0.05 **P<0.01

TABLE 11 (Continued)
Local-Nonlocal Failure and Near-Failure Experience (Constant Rate Exponential Models)

[redacted]

Variables	Coeff	Error	Coeff	Error	Coeff	Error
Const	2.5773	3.4390	6.0943	3.6024	9.6845*	3.9661
Age	0.0355	0.0186	0.0297	0.0185	0.0312	0.0180
Age^2	-0.0005**	0.0001	-0.0005**	0.0001	-0.0004**	0.0001
log (Total Asset)	-0.3355**	0.0747	-0.3452**	0.0751	-0.3857**	0.0771
Federal Charter	0.4228**	0.1425	0.4047**	0.1423	0.3996**	0.1444
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000	0.0000	0.0000
Unemployment Rate	0.2196**	0.0509	0.2046**	0.0511	0.1883**	0.0592
Dow Jones Index	-0.0003	0.0002	-0.0002	0.0003	-0.0006*	0.0003
Personal Income	0.1529**	0.0327	0.1711**	0.0329	0.1482**	0.0368
Bank Prime Loan Rate	-0.2936**	0.1089	-0.3025**	0.1084	-0.4345**	0.1135
Nonresidential Construction/10^6	-0.0054	0.0129	-0.0113	0.0144	-0.0137	0.0139
NCREIF Index	-0.0640	0.0468	-0.1011*	0.0481	-0.0446	0.0501
CB Density	0.0008	0.0015	0.0009	0.0015	0.0012	0.0015
S&L Density	0.0195*	0.0088	0.0102	0.0092	0.0029	0.0094
CU Density	0.0013	0.0032	0.0029	0.0032	0.0062	0.0033
CB $Density^2$/1000	-0.0002	0.0006	0.0001	0.0006	-0.0004	0.0006
S&L $Density^2$/1000	-0.0467	0.0277	-0.0301	0.0291	-0.0047	0.0276
CU $Density^2$/1000	0.0007	0.0014	0.0006	0.0014	-0.0002	0.0014
Founding CB Density	0.0014	0.0009	0.0005	0.0010	0.0006	0.0009
Founding S&L Density	-0.0177**	0.0044	-0.0121*	0.0048	-0.0087	0.0046
Founding CU Density	-0.0003	0.0021	-0.0014	0.0021	-0.0035	0.0022
CB Mass Density	-0.0034*	0.0015	-0.0033*	0.0015	-0.0026	0.0014
S&L Mass Density	-0.002	0.0018	-0.0042*	0.0019	-0.0064**	0.0023
Regulation Interval	-0.0075*	0.0032	-0.0121**	0.0039	-0.0163**	0.0040
# of FDIC Enforcement	-0.0024	0.0033	0.0014	0.0037	-0.0013	0.0034
CB Employee Release	0.0001	0.0001	0.0002**	0.0001	0.0003**	0.0001
CB Deposit Release/1000	-0.0446	0.0311	-0.1201**	0.0360	-0.1529**	0.0382
S&L Deposit Release/1000	0.0320	0.0199	0.0564**	0.0212	0.0682**	0.0215
Congenital Failure Exp/Age^2	-0.0059**	0.0020	-0.0036	0.0021	-0.0023	0.0021
Congenital Operating Exp/Age^2	-0.0012	0.0009	-0.0019*	0.0009	-0.0013	0.0009
CB Local Failure Exp/Regulation+Age	0.0062**	0.0017	0.0109**	0.0020	0.0125**	0.0027
CB Nonlocal Failure Exp/Regulation+Age	0.0043**	0.0014	0.0094**	0.0018	0.0089**	0.0018
CB Local Near Failure/Regulation+Age	-0.0034**	0.0007	-0.0035**	0.0008	-0.0021**	0.0008
CB Nonlocal Near Failure/Regulation+Age	0.0001	0.0002	-0.0003	0.0005	0.0018**	0.0005
S&L Failure Exp/Regulation+Age			-0.0050**	0.0012		
S&L Near Failure Exp/Regulation+Age			0.0005	0.0011		
S&L Local Failure Exp/Regaulation+Age					-0.0187**	0.0056
S&L Nonlocal Failure Exp/Regulation+Age					-0.0073**	0.0016
S&L Local Near Failure/Regualtion+Age					-0.0136**	0.0036
S&L Nonlocal Near Failure/Regualtion+Age					-0.0054**	0.0015
Log-Likelihoods	-7385.7035		-7367.1621		-7351.7650	

*P<0.05 **P<0.01

TABLE 12
Local-Nonlocal Failure and Near-Failure Experience (Piecewise Exponential Models)

Variables	Coeff	Error	Coeff	Error	Coeff	Error
0-5 Years	-3.6700	3.4084	5.0942	4.7221	6.0858	4.8425
5-10 Years	-4.1184	3.3971	4.8360	4.7115	5.8733	4.8331
>10 Years	-4.5073	3.4861	5.2938	4.8187	6.2173	4.9417
log (Total Asset)	-0.2587**	0.0694	-0.3452**	0.0714	-0.3363**	0.0714
Federal Charter	0.4565**	0.1415	0.4299**	0.1423	0.4356**	0.1442
Capital Asset Ratio	-0.0003**	0.0001	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001*	0.0000	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2532**	0.0500	0.2529**	0.0503	0.2138**	0.0556
Dow Jones Index	-0.0005*	0.0002	-0.0001	0.0003	-0.0001	0.0003
Personal Income	0.1706**	0.0324	0.1972**	0.0321	0.1377**	0.0378
Bank Prime Loan Rate	-0.1327	0.1044	-0.3625**	0.1086	-0.3697**	0.1086
Nonresidential Construction/10^6	0.0119	0.0107	-0.0281*	0.0140	-0.0293*	0.0142
NCREIF Index	-0.1417**	0.0438	-0.0224	0.0472	-0.0103	0.0474
CB Density	-0.0004	0.0013	-0.0006	0.0014	0.0007	0.0014
S&L Density	0.0256**	0.0085	0.0095	0.0086	-0.0047	0.0094
CU Density	-0.0015	0.0029	0.0026	0.0030	0.0055	0.0031
CB $Density^2$/1000	0.0001	0.0005	0.0002	0.0005	0.0000	0.0005
S&L $Density^2$/1000	-0.0629*	0.0271	-0.0256	0.0262	0.0034	0.0267
CU $Density^2$/1000	0.0013	0.0013	0.0014	0.0013	0.0002	0.0014
Founding CB Density	0.0019*	0.0008	0.0013	0.0009	0.0000	0.0010
Founding S&L Density	-0.0175**	0.0040	-0.0088*	0.0044	-0.0019	0.0047
Founding CU Density	0.0012	0.0018	-0.0024	0.0020	-0.0036	0.0020
CB Mass Density	-0.0044*	0.0018	-0.0038*	0.0016	-0.0026	0.0014
S&L Mass Density	-0.002	0.0020	-0.0036	0.0019	-0.0053*	0.0023
Regulation Interval	-0.0074*	0.0031	-0.0064	0.0034	-0.0064	0.0034
# of FDIC Enforcement	0.0016	0.0026	-0.0011	0.0035	-0.0011	0.0036
CB Employee Release	0.0000	0.0001	0.0002**	0.0001	0.0002**	0.0001
CB Deposit Release/1000	-0.0228	0.0291	-0.0914**	0.0322	-0.1402**	0.0341
S&L Deposit Release/1000	0.0506**	0.0191	0.0447*	0.0197	0.0695**	0.0201
Congenital Failure Exp/Age^2	-0.0052**	0.0017	0.0073**	0.0027	0.0067*	0.0027
Congenital Operating Exp/Age^2	-0.0003	0.0008	-0.0019	0.0011	-0.0018	0.0012
CB Local Failure Exp/No Discount	0.0018	0.0012	0.0128**	0.0019	0.0160**	0.0023
CB Nonlocal Failure Exp/No Discount	0.0015	0.0010	0.0133**	0.0018	0.0121**	0.0019
CB Local Near Failure Exp/No Discount	-0.0010**	0.0003	-0.0006	0.0004	-0.0007*	0.0004
CB Nonlocal Near Failure Exp/No Discount	-0.0001	0.0002	0.0005	0.0003	0.0005	0.0003
S&L Failure Exp/No Discount			-0.0119**	0.0013		
S&L Near Failure Exp/No Discount			-0.0039**	0.0008		
S&L Local Failure/No Discount					-0.0260**	0.0039
S&L Nonlocal Failure Exp/No Discount					-0.0094**	0.0015
S&L Local Near Failure Exp/No Discount					-0.0060**	0.0017
S&L Nonlocal Near Failure Exp/No Discount					-0.0035**	0.0008
Loglikelihood	-7439.7974		-7388.6180		-7380.1342	

*P<0.05 **P<0.01

TABLE 12 (continued)
Local-Nonlocal Failure and Near-Failure Experience (Piecewise Exponential Models)

[redacted]						
Variables	**Coeff**	**Error**	**Coeff**	**Error**	**Coeff**	**Error**
0-5 Years	-3.8878	2.9219	2.3069	3.2461	1.1701	3.3236
5-10 Years	-4.2528	2.8497	2.1040	3.1879	1.0329	3.2657
>10 Years	-3.4060	2.8033	2.5896	3.1113	1.4663	3.1831
log (Total Asset)	-0.3159**	0.0717	-0.3535**	0.0737	-0.3424**	0.0741
Federal Charter	0.4402**	0.1415	0.4033**	0.1420	0.4147**	0.1428
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2506**	0.0509	0.2367**	0.0504	0.2501**	0.0555
Dow Jones Index	-0.0005*	0.0002	-0.0004	0.0002	-0.0004	0.0002
Personal Income	0.1512**	0.0335	0.1691**	0.0333	0.1755**	0.0370
Bank Prime Loan Rate	-0.2465*	0.1111	-0.3945**	0.1137	-0.3925**	0.1139
Nonresidential Construction/10^6	-0.0084	0.0124	-0.0203	0.0134	-0.0191	0.0134
NCREIF Index	-0.0452	0.0481	-0.0457	0.0488	-0.0367	0.0489
CB Density	0.0006	0.0014	0.0002	0.0014	0.0013	0.0014
S&L Density	0.0271**	0.0086	0.0142	0.0087	0.0112	0.0092
CU Density	0.0003	0.0031	0.0018	0.0031	0.0033	0.0032
CB Density^2/1000	0.0000	0.0006	0.0001	0.0006	-0.0002	0.0006
S&L Density^2/1000	-0.0693*	0.0278	-0.0288	0.0276	-0.024	0.0280
CU Density^2/1000	0.0013	0.0014	0.0009	0.0014	0.0006	0.0014
Founding CB Density	0.0013	0.0008	0.0009	0.0009	0.0001	0.0009
Founding S&L Density	-0.0190**	0.0040	-0.0143**	0.0042	-0.0115**	0.0043
Founding CU Density	-0.0001	0.0019	-0.0009	0.0019	-0.0017	0.0020
CB Mass Density	-0.0038*	0.0016	-0.0038*	0.0016	-0.0025	0.0015
S&L Mass Density	-0.0019	0.0019	-0.0039*	0.0020	-0.0078**	0.0023
Regulation Interval	-0.0022	0.0029	-0.0064*	0.0031	-0.0056	0.0031
# of FDIC Enforcement	-0.0001	0.0030	0.0013	0.0032	0.0006	0.0032
CB Employee Release	0.0001	0.0001	0.0002**	0.0001	0.0003**	0.0001
CB Deposit Release/1000	-0.0489	0.0303	-0.1363**	0.0351	-0.1521**	0.0369
S&L Deposit Release/1000	0.0341	0.0196	0.0647**	0.0206	0.0738**	0.0220
Congenital Failure Exp/Age^2	-0.0059**	0.0019	-0.0020	0.0021	-0.0017	0.0021
Congenital Operating Exp/Age^2	0.0003	0.0007	-0.0005	0.0007	-0.0004	0.0007
CB Local Failure Exp/Age	0.0118**	0.0021	0.0187**	0.0024	0.0181**	0.0033
CB Nonlocal Failure Exp/Age	0.0083**	0.0018	0.0162**	0.0023	0.0159**	0.0024
CB Local Near Failure/Age	-0.0039**	0.0008	-0.0030**	0.0009	-0.0029**	0.0009
CB Nonlocal Near Failure/Age	-0.0002	0.0004	0.0004	0.0006	0.0006	0.0006
S&L Failure Exp/Age			-0.0096**	0.0016		
S&L Near Failure Exp/Age			-0.0038**	0.0015		
S&L Local Failure Exp/Age					-0.0139*	0.0066
S&L Nonlocal Failure Exp/Age					-0.0086**	0.0019
S&L Local Near Failure/Age					-0.0146**	0.0042
S&L Nonlocal Near Failure Exp/Age					-0.0027*	0.0015
Loglikihood	-7400.2457		-7379.3097		-7371.5941	

*P<0.05 **P<0.01

TABLE 12 (continued)
Local-Nonlocal Failure and Near-Failure Experience (Piecewise Exponential Models)

[redacted]

Variables	Coeff	Error	Coeff	Error	Coeff	Error
0-5 Years	1.5674	2.7503	2.5103	2.8113	1.5728	2.8259
5-10 Years	1.2833	2.6767	2.3161	2.7448	1.4303	2.7591
>10 Years	2.2660	2.6606	3.0843	2.7119	2.1408	2.7242
log (Total Asset)	-0.3231**	0.0720	-0.3257**	0.0726	-0.3162**	0.0730
Federal Charter	0.4183**	0.1417	0.4095**	0.1417	0.4169**	0.1421
Capital Asset Ratio	-0.0003**	0.0001	-0.0003**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2424**	0.0504	0.2360**	0.0498	0.2630**	0.0531
Dow Jones Index	-0.0004*	0.0002	-0.0004*	0.0002	-0.0005*	0.0002
Personal Income	0.1568**	0.0335	0.1693**	0.0337	0.1892**	0.0355
Bank Prime Loan Rate	-0.4259**	0.1145	-0.4241**	0.1140	-0.4277**	0.1142
Nonresidential Construction/10^6	-0.0212	0.0135	-0.0179	0.0137	-0.0178	0.0140
NCREIF Index	0.0014	0.0483	-0.0245	0.0490	-0.0174	0.0491
CB Density	0.0006	0.0014	0.0006	0.0014	0.0015	0.0015
S&L Density	0.0196*	0.0084	0.0146	0.0087	0.0152	0.0090
CU Density	0.0013	0.0031	0.0018	0.0031	0.0023	0.0031
CB Density^2/1000	0.0001	0.0006	0.0002	0.0006	-0.0001	0.0006
S&L Density^2/1000	-0.0491	0.0272	-0.037	0.0280	-0.0412	0.0283
CU Density^2/1000	0.0011	0.0014	0.0009	0.0014	0.0009	0.0014
Founding CB Density	0.0010	0.0008	0.0005	0.0009	0.0000	0.0009
Founding S&L Density	-0.0156**	0.0041	-0.0134**	0.0043	-0.0117**	0.0044
Founding CU Density	-0.0007	0.0019	-0.0008	0.0019	-0.0012	0.0020
CB Mass Density	-0.0035*	0.0015	-0.0034*	0.0015	-0.0024	0.0014
S&L Mass Density	-0.0026	0.0019	-0.0039*	0.0020	-0.0074**	0.0022
Regulation Interval	-0.0031	0.0029	-0.0056	0.0031	-0.0053	0.0031
# of FDIC Enforcement	-0.0016	0.0032	0.0001	0.0033	-0.0005	0.0033
CB Employee Release	0.0002*	0.0001	0.0002**	0.0001	0.0002**	0.0001
CB Deposit Release/1000	-0.0820**	0.0312	-0.1224**	0.0356	-0.1196**	0.0366
S&L Deposit Release/1000	0.0338	0.0195	0.0508*	0.0209	0.0478*	0.0222
Congenital Failure Exp/Age^2	-0.0056**	0.0019	-0.0046*	0.0020	-0.0042*	0.0020
Congenital Operating Exp/Age^2	-0.0003	0.0006	-0.0005	0.0006	-0.0005	0.0006
CB Local Failure Exp/Age^2	0.0198**	0.0026	0.0221**	0.0028	0.0176**	0.0038
CB Nonlocal Failure Exp/Age^2	0.0148**	0.0023	0.0177**	0.0027	0.0181**	0.0027
CB Local Near Failure/Age^2	-0.0068**	0.0013	-0.0066**	0.0013	-0.0063**	0.0013
CB Nonlocal Near Failure/Age^2	-0.0009*	0.0004	-0.0012	0.0008	-0.0009	0.0008
S&L Failure Exp/Age^2			-0.0034*	0.0016		
S&L Near Failure Exp/Age^2			0.0004	0.0017		
S&L Local Failure Exp/Age^2					0.0019	0.0071
S&L Nonlocal Failure Exp/Age^2					-0.0043*	0.0020
S&L Local Near Failure Exp/Age^2					-0.0183**	0.0061
S&L Nonlocal Near Failure/Age^2					0.0017	0.0017
Log-Likelihoods	-7380.1807		-7374.4193		-7363.1818	

*P<0.05 **P<0.01

TABLE 12 (continued)
Local-Nonlocal Failure and Near-Failure Experience (Piecewise Exponential Models)

[redacted]

Variables	Coeff	Error	Coeff	Error	Coeff	Error
0-5 Years	-4.6017	2.5859	-1.2566	2.7772	4.9286	3.2515
5-10 Years	-4.9418*	2.5094	-1.4203	2.7157	4.9102	3.2012
>10 Years	-4.2193	2.5067	-0.5900	2.7188	5.3466	3.1632
log (Total Asset)	-0.3397**	0.0731	-0.3493**	0.0738	-0.3864**	0.0760
Federal Charter	0.4409**	0.1416	0.4250**	0.1415	0.4090**	0.1439
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000	0.0000	0.0000
Unemployment Rate	0.2503**	0.0502	0.2343**	0.0502	0.2165**	0.0584
Dow Jones Index	-0.0007**	0.0002	-0.0006**	0.0002	-0.0009**	0.0002
Personal Income	0.1537**	0.0330	0.1696**	0.0332	0.1439**	0.0369
Bank Prime Loan Rate	-0.3014**	0.1072	-0.3170**	0.1089	-0.4913**	0.1161
Nonresidential Construction/10^6	0.0085	0.0123	0.0034	0.0139	-0.0013	0.0137
NCREIF Index	-0.0480	0.0467	-0.0815	0.0478	-0.0226	0.0498
CB Density	0.0010	0.0014	0.0008	0.0014	0.0010	0.0015
S&L Density	0.0246**	0.0086	0.0161	0.0089	0.0075	0.0092
CU Density	0.0007	0.0030	0.0018	0.0031	0.0049	0.0032
CB $Density^2$/1000	-0.0002	0.0006	0.0002	0.0006	-0.0003	0.0006
S&L $Density^2$/1000	-0.0621*	0.0279	-0.0451	0.0291	-0.0161	0.0277
CU $Density^2$/1000	0.0013	0.0014	0.0012	0.0014	0.0003	0.0014
Founding CB Density	0.0013	0.0008	0.0005	0.0009	0.0007	0.0009
Founding S&L Density	-0.0188**	0.0040	-0.0138**	0.0044	-0.0100*	0.0043
Founding CU Density	-0.0004	0.0019	-0.0011	0.0019	-0.0029	0.0020
CB Mass Density	-0.0039*	0.0017	-0.0037*	0.0016	-0.0029	0.0015
S&L Mass Density	-0.0018	0.0019	-0.0041*	0.0020	-0.0060**	0.0023
Regulation Interval	-0.0053	0.0028	-0.0101**	0.0036	-0.0154**	0.0037
# of FDIC Enforcement	0.0009	0.0029	0.0053	0.0035	0.0008	0.0032
CB Employee Release	0.0001*	0.0001	0.0002**	0.0001	0.0003**	0.0001
CB Deposit Release/1000	-0.0641*	0.0306	-0.1388**	0.0354	-0.1672**	0.0374
S&L Deposit Release/1000	0.0333	0.0195	0.0594**	0.0208	0.0693**	0.0212
Congenital Failure Exp/Age^2	-0.0068**	0.0019	-0.0046*	0.0020	-0.0028	0.0020
Congenital Operating Exp/Age^2	0.0006	0.0006	0.0001	0.0007	0.0001	0.0007
CB Local Failure Exp/Regulation+Age	0.0080**	0.0016	0.0127**	0.0019	0.0144**	0.0027
CB Nonlocal Failure Exp/Regulation+Age	0.0057**	0.0013	0.0108**	0.0017	0.0102**	0.0017
CB Local Near Failure/Regulation+Age	-0.0032**	0.0007	-0.0034**	0.0008	-0.0018*	0.0008
CB Nonlocal Near Failure/Regulation+Age	0.0001	0.0002	-0.0003	0.0005	0.0021**	0.0005
S&L Failure Exp/Regulation+Age			-0.0051**	0.0011		
S&L Near Failure Exp/Regulation+Age			0.0007	0.0011		
S&L Local Failure Exp/Regaulation+Age					-0.0197**	0.0056
S&L Nonlocal Failure Exp/Regulation+Age					-0.0077**	0.0016
S&L Local Near Failure/Regualtion+Age					-0.0140**	0.0036
S&L Nonlocal Near Failure/Regualtion+Age					-0.0061**	0.0015
Log-Likelihoods	-7399.8977		-7380.2557		-7360.6340	

*P<0.05 **P<0.01

TABLE 13-1
Maximum-Likelihood Estimate of Bank Failures with Calendar Year Control
(Constant Rate Exponential Model)

Variables	Coeff	Error	Coeff	Error
Const	3.1413	3.8540	3.8822	3.8634
Calendar Year	0.0745**	0.0195	0.0740**	0.0200
Age	0.0327	0.0213	0.0390	0.0216
Age^2	-0.0007**	0.0001	-0.0007**	0.0001
log (Total Asset)	-0.3453**	0.0747	-0.3437**	0.0749
Federal Charter	0.4200**	0.1420	0.4042**	0.1420
Capital Asset Ratio	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2854**	0.0472	0.2672**	0.0473
Dow Jones Index	-0.0008**	0.0003	-0.0008**	0.0003
Personal Income	0.1706**	0.0323	0.1888**	0.0324
Bank Prime Loan Rate	-0.3966**	0.1168	-0.3860**	0.1163
Nonresidential Construction/10^6	-0.0079	0.0142	-0.0009	0.0148
NCREIF Index	0.0201	0.0481	-0.0177	0.0487
CB Density	-0.0021	0.0013	-0.0014	0.0014
S&L Density	0.0275**	0.0079	0.0184*	0.0084
CU Density	0.0003	0.0031	0.0016	0.0031
CB Density^2/1000	0.0010*	0.0005	0.0012*	0.0005
S&L Density^2/1000	-0.0731**	0.0249	-0.0594*	0.0262
CU Density^2/1000	0.0018	0.0013	0.0016	0.0013
Founding CB Density	0.0014	0.0009	0.0002	0.0010
Founding S&L Density	-0.0149**	0.0045	-0.0099*	0.0048
Founding CU Density	-0.0006	0.0021	-0.0014	0.0021
CB Mass Density	-0.0036*	0.0015	-0.0033*	0.0015
S&L Mass Density	-0.002	0.0018	-0.0038*	0.0019
Regulation Interval	0.0012	0.0036	-0.0022	0.0038
# of FDIC Enforcement	0.0018	0.0036	0.0041	0.0038
CB Employee Release	0.0001*	0.0001	0.0002**	0.0001
CB Deposit Release/1000	-0.0594	0.0311	-0.1120**	0.0357
S&L Deposit Release/1000	0.0291	0.0201	0.0495*	0.0215
Congenital Failure Exp/Age^2	-0.0024	0.0020	-0.0013	0.0021
Congenital Operating Exp/Age^2	-0.0042**	0.0011	-0.0045**	0.0011
CB Failure Exp/Age^2	0.0127**	0.0022	0.0173**	0.0026
CB Near Failure Exp/Age^2	-0.0021**	0.0004	-0.0034**	0.0008
CB S&L Failure Exp/Age^2			-0.0034*	0.0016
CB S&L Near Failure Exp/Age^2			0.0030*	0.0018
Log-Likelihoods	-7380.0077		-7368.8132	

*P<0.05 **P<0.01

TABLE 13-2
Maximum-Likelihood Estimate of Bank Failures with Calendar Year Control
(Piecewise Exponential Model)

Variables	Coeff	Error	Coeff	Error	Coeff	Error
Period-1	-8.1847**	2.6775	-3.5420	3.5813	-2.3577	3.6948
Period-2	-8.7423**	2.6470	-3.9706	3.5533	-2.6506	3.6746
Period-3	-9.5103**	2.7409	-3.1776	3.6258	-2.0393	3.7128
Calendar Year	0.0379**	0.0127	0.0288	0.0159	0.0286	0.0161
log (Total Asset)	-0.2677**	0.0704	-0.3365**	0.0735	-0.3369**	0.0736
Federal Charter	0.4601**	0.1410	0.4481**	0.1408	0.4353**	0.1408
Capital Asset Ratio	-0.0003**	0.0001	-0.0004**	0.0001	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001*	0.0000	-0.0001	0.0000	-0.0001	0.0000
Unemployment Rate	0.2857**	0.0466	0.3070**	0.0464	0.2931**	0.0461
Dow Johns Index	-0.0011**	0.0003	-0.0008**	0.0003	-0.0008**	0.0003
Personal Income	0.1783**	0.0321	0.1802**	0.0329	0.1969**	0.0329
Bank Prime Loan Rate	0.0071	0.1001	-0.3894**	0.1197	-0.3838**	0.1189
Nonresidential Construction/10^6	0.0133	0.0110	-0.0109	0.0140	-0.0053	0.0146
NCREIF Index	-0.1462**	0.0409	0.0144	0.0484	-0.0213	0.0490
CB Density	-0.0015	0.0013	-0.0016	0.0013	-0.0012	0.0013
S&L Density	0.0285**	0.0076	0.0305**	0.0078	0.0232**	0.0081
CU Density	-0.0007	0.0029	-0.0005	0.0030	0.0003	0.0030
CB $Density^2$/1000	0.0006	0.0005	0.0010*	0.0005	0.0012*	0.0005
S&L $Density^2$/1000	-0.0742**	0.0250	-0.0837**	0.0255	-0.0689**	0.0265
CU $Density^2$/1000	0.0015	0.0013	0.0023	0.0013	0.0021	0.0013
Founding CB Density	0.0014	0.0008	0.0011	0.0008	0.0003	0.0009
Founding S&L Density	-0.0151**	0.0039	-0.0165**	0.0041	-0.0129**	0.0044
Founding CU Density	0.0004	0.0018	-0.0003	0.0019	-0.0007	0.0019
CB Mass Density	-0.0047*	0.0019	-0.0041*	0.0017	-0.0038*	0.0016
S&L Mass Density	-0.0025	0.0020	-0.0023	0.0019	-0.0042*	0.0020
Regulation Interval	-0.0032	0.0034	0.0007	0.0036	-0.0028	0.0039
# of FDIC Enforcement	0.0064*	0.0025	0.0023	0.0035	0.0046	0.0037
CB Employee Release	0.0001	0.0001	0.0002**	0.0001	0.0003**	0.0001
CB Deposit Release/1000	-0.0417	0.0290	-0.0797**	0.0308	-0.1332**	0.0353
S&L Deposit Release/1000	0.0560**	0.0193	0.0382	0.0196	0.0602**	0.0211
Congenital Failure Exp/Age^2	-0.0060**	0.0015	-0.0059**	0.0019	-0.0044*	0.0020
Congenital Operating Exp/Age^2	-0.0006	0.0005	-0.0004	0.0006	-0.0007	0.0006
CB Failure Exp/Age^2			0.0163**	0.0022	0.0204**	0.0026
CB Near Failure Exp/Age^2			-0.0017**	0.0004	-0.0025**	0.0007
S&L Failure Exp/Age^2					-0.0039**	0.0016
S&L Near Failure Exp/Age^2					0.0019	0.0017
Log-Likelihoods	-7437.5903		-7399.4007		-7389.4422	

*P<0.05 **P<0.01

TABLE 13-3
Local-Nonlocal Experience with Calendar Year Control
(Piecewise Exponential Model)

Variables	Coeff	Error
Period-1	-2.8300	3.7704
Period-2	-3.0742	3.7503
Period-3	-2.5473	3.7805
Calendar Year	0.0314	0.0165
log (Total Asset)	-0.3316**	0.0737
Federal Charter	0.4193**	0.1420
Capital Asset Ratio	-0.0004**	0.0001
Nonperforming Loan/Total Loan	-0.0001	0.0000
Unemployment Rate	0.2658**	0.0532
Dow Jones Index	-0.0009**	0.0003
Personal Income	0.1831**	0.0357
Bank Prime Loan Rate	-0.3972**	0.1184
Nonresidential Construction/10^6	-0.0070	0.0150
NCREIF Index	0.0020	0.0508
CB Density	0.0014	0.0015
S&L Density	0.0162	0.0090
CU Density	0.0026	0.0031
CB Density^2/1000	0.0000	0.0006
S&L Density^2/1000	-0.0443	0.0284
CU Density^2/1000	0.0010	0.0014
Founding CB Density	0.0000	0.0009
Founding S&L Density	-0.0116**	0.0044
Founding CU Density	-0.0016	0.0020
CB Mass Density	-0.0025	0.0015
S&L Mass Density	-0.0071**	0.0022
Regulation Interval	-0.0010	0.0039
# of FDIC Enforcement	0.0032	0.0038
CB Employee Release	0.0002**	0.0001
CB Deposit Release/1000	-0.1206**	0.0365
S&L Deposit Release/1000	0.0472*	0.0223
Congenital Failure Exp/Age^2	-0.0041*	0.0020
Congenital Operating Exp/Age^2	-0.0008	0.0006
CB Local Failure Exp/Age^2	0.0176**	0.0038
CB Nonlocal Failure Exp/Age^2	0.0176**	0.0027
CB Local Near Failure/Age^2	-0.0067**	0.0014
CB Nonlocal Near Failure/Age^2	-0.0012	0.0008
S&L Local Failure Exp/Age^2	0.0016	0.0071
S&L Nonlocal Failure Exp/Age^2	-0.0036*	0.0020
S&L Local Near Failure Exp/Age^2	-0.0171**	0.0061
S&L Nonlocal Near Failure/Age^2	0.0025	0.0017
Log-Likelihoods	-7354.5868	

*P<0.05 **P<0.01

FIGURES

FIGURE 1
The Effects of Failure

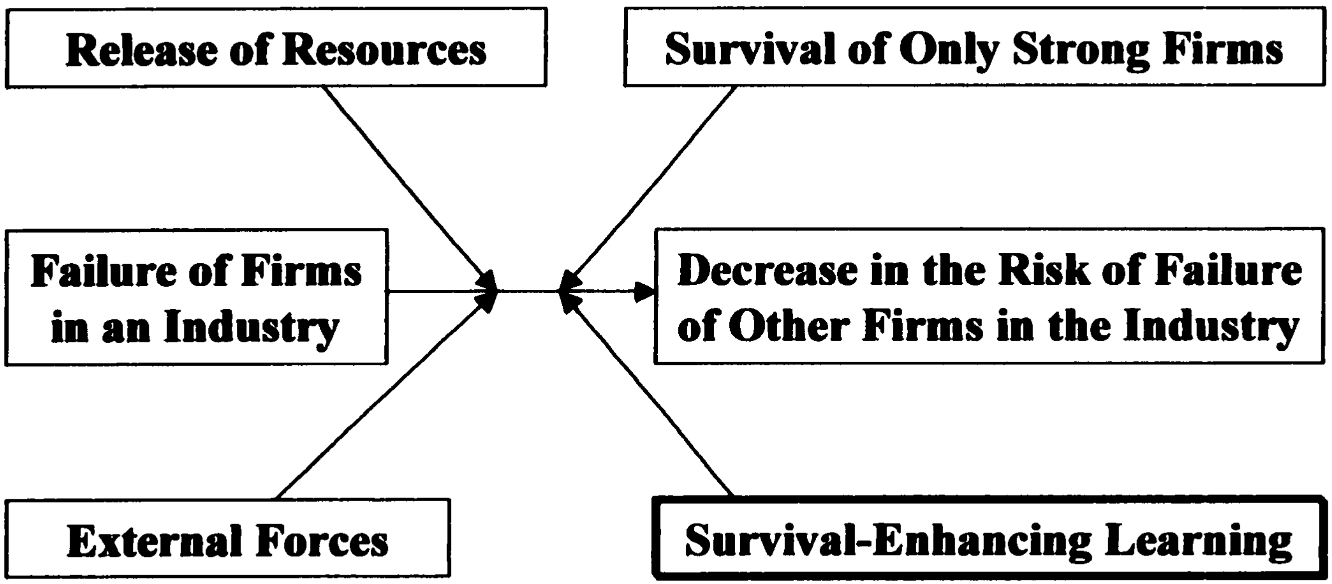


FIGURE 2

Change in the Number of Commercial Banks Chartered between 1984-1998

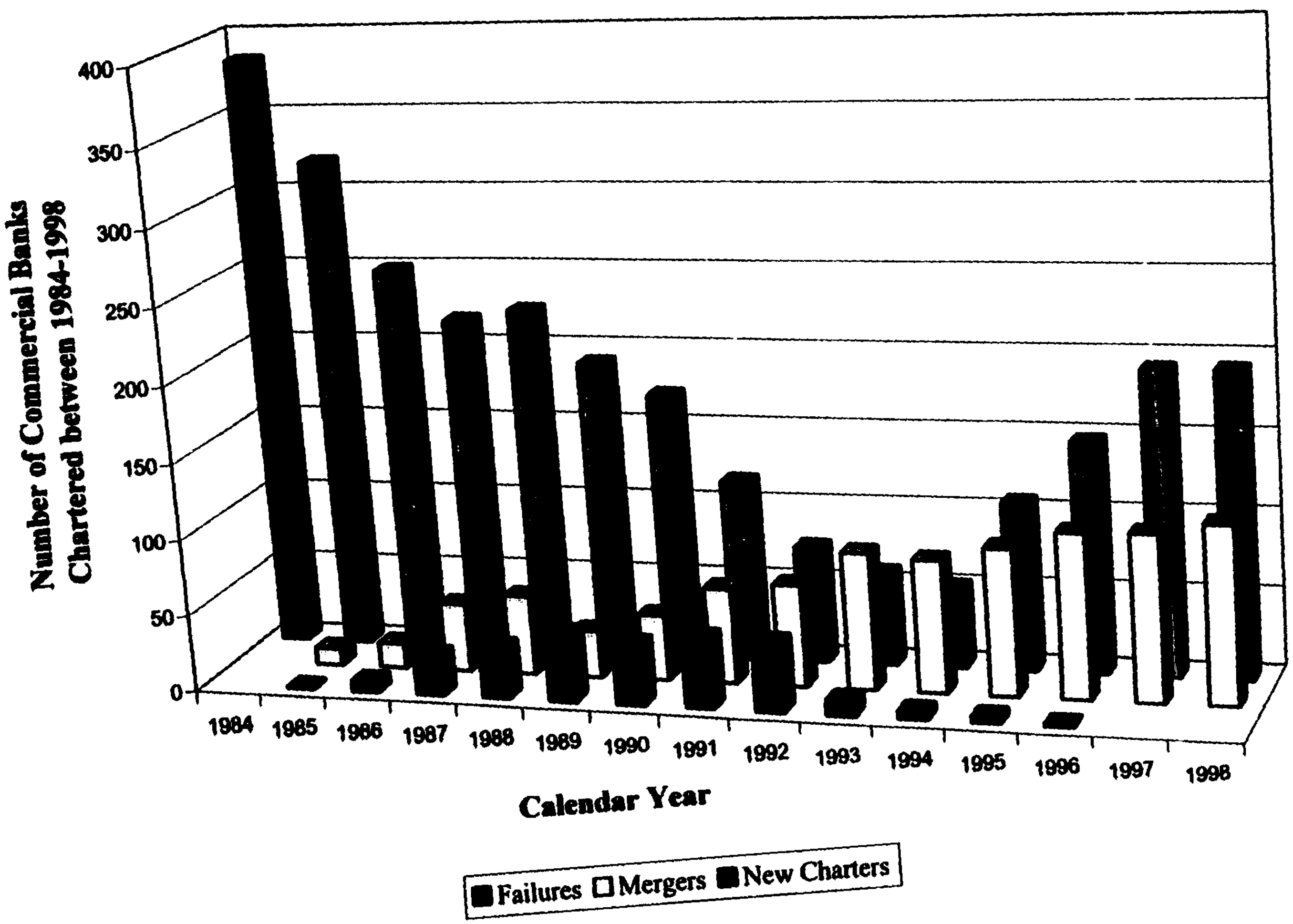


FIGURE 3
Change in the Number of Banks, S&L, and Credit Unions between 1984-1998

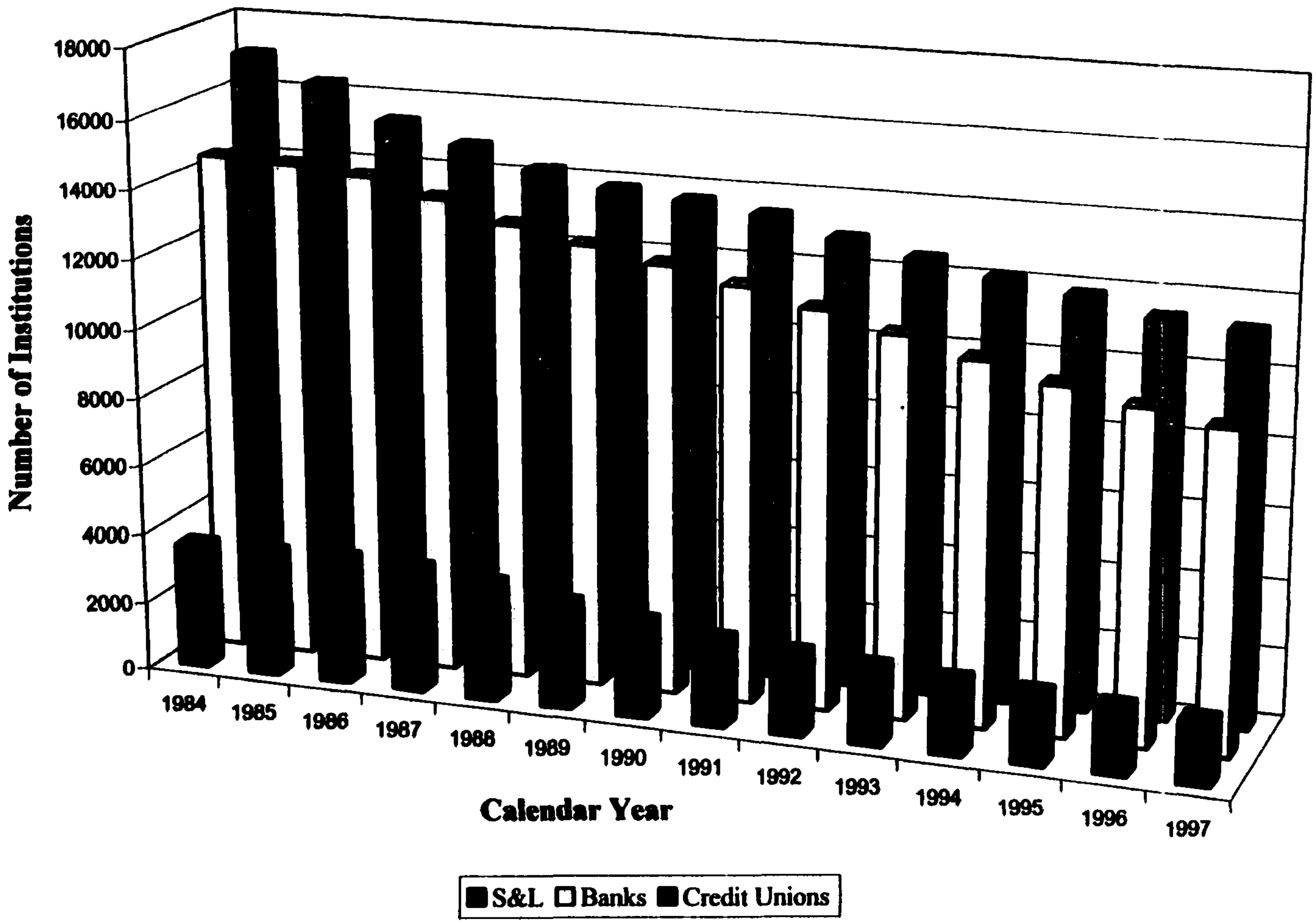
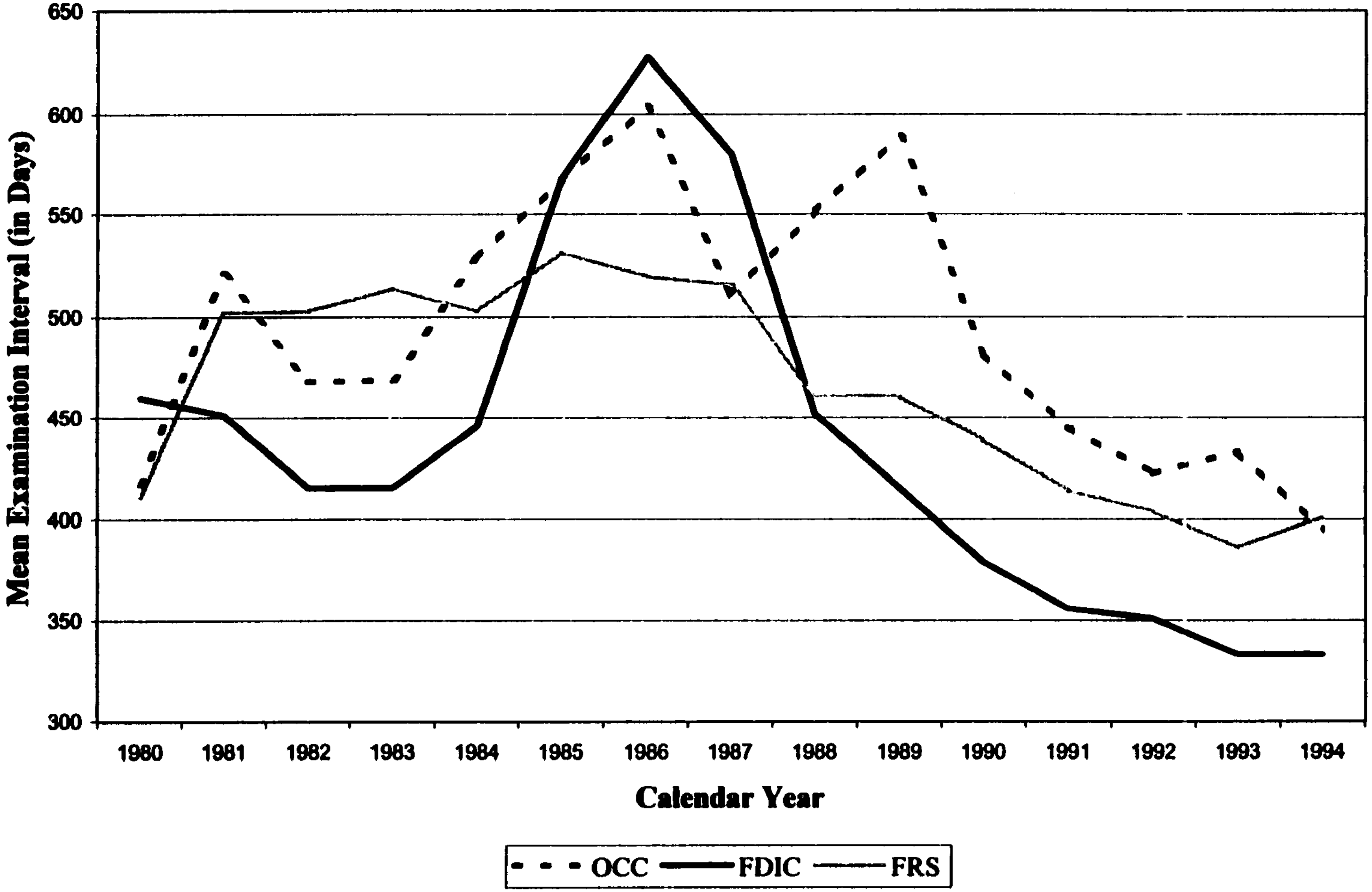


FIGURE 4
Mean Examination Interval for Commercial Banks, by Regulatory Agency



APPENDICES

APPENDIX 1
Sample Interview Questions

GENERAL QUESTIONS

1. How much attention does your bank pay to strategies and practices of other banks? How easy is it to obtain such information? Is such information usually available to your bank?
2. Does your bank learn from strategies and practices of other banks? How important do you think is such learning in the commercial banking industry?
3. How do you learn from other banks? What are the primary mechanisms for such learning?
4. How is failure perceived in the commercial banking industry? That is, what are the general attitudes towards failure of other banks?
5. What are your general reactions to failure of other banks?

SPECIFIC QUESTIONS

1. Do you pay attention to near-failures[1] as well as failures of other banks?
2. If you pay attention to both failure and near-failure of other banks, which one do you pay more attention to? Why? Which one do you think is more important in terms of learning? Why?

[1] Near-failure refers to banks that were on the brink of failure due to substantial performance deterioration but managed not to fail.

3. How important is the recency of information in the commercial banking industry? In other words, how often do lessons you learned become obsolete? What is the expected life span of useful information as understood in the commercial banking industry? What are the forces that affect the usefulness of lessons you learned?
4. Do you pay more attention to practices and strategies of your local competitors than other non-local banks? If so, do you pay any attention to non-local banks?
5. Do you pay more attention to practices and strategies of banks with similar size?
6. Do you pay attention to practices and strategies of S&L or Credit unions?
7. How important is the role of regulatory institutions (e.g., FDIC) in spreading practices in the commercial banking industry (compared to direct interorganizational observation or communication)?

END OF APPENDIX 1

APPENDIX 2
Survey Instrument

Q1. **How much attention does your bank pay to strategies and practices of other banks (e.g., benchmarking)?** ***(1 = Pays no attention; 7 = Pays very much attention)***

1	2	3	4	5	6	7

Q2. **How easy is it to obtain information on the strategies and practices of other banks?** ***(1 = very easy; 7 = very difficult)***

1	2	3	4	5	6	7

Q3. **Do you think your bank "learns" from strategies and practices of other banks?** ***(1 = Strongly disagree; 7 = Strongly agree)***

1	2	3	4	5	6	7

Q4. **How important do you think is "learning" from strategies and practices of other banks to improve your own performance?** ***(1 = Not important at all; 7 = Very Important)***

1	2	3	4	5	6	7

Q5. **How much attention does your bank pay to failure of other banks (e.g., bankruptcy, FDIC assistance, involuntary merger)? That is, how much effort does your bank put in analyzing failure of other banks?** ***(1 = No attention at all; 7 = Pays very much attention)***

1	2	3	4	5	6	7

Q6. **Do you think your bank "learns" from analyzing (or studying) failure of other banks?** ***(1 = Strongly disagree; 7 = Strongly agree)***

1	2	3	4	5	6	7

Q7. **How important do you think is "learning from failure" of other banks in improving your own performance?** ***(1 = Not important at all; 7 = Very Important)***

1	2	3	4	5	6	7

Q8. How much attention do you pay to low-performing or financially-troubled banks? That is, how much effort do you put in analyzing such banks? *(1 = No attention at all; 7 = Very much attention)*

1	2	3	4	5	6	7

Q9. Do you think your bank "learns" from analyzing (or studying) low-performing or financially-troubled banks? *(1 = Strongly disagree; 7 = Strongly agree)*

1	2	3	4	5	6	7

Q10. Which one do you think your bank can learn more lessons from?

Failed banks (bankruptcy, involuntary merger, FDIC assistance)	Low-performing or financially-troubled banks

Q11. How fast do you think the commercial banking industry change? *(1 = Very slow; 7 = Very fast)*

1	2	3	4	5	6	7

Q12. How fast does the competitive information (e.g., your competitors' strategy, industry norm) become obsolete in the banking industry? That is, how fast do the lessons you learned from various sources become obsolete? *(1 = Very slow; 7 = Very fast)*

1	2	3	4	5	6	7

Q13. Do you think banks should change their strategies and practices frequently in order to achieve high performance? *(1 = Strongly disagree; 7 = Strongly agree)*

1	2	3	4	5	6	7

Q14. To what degree do you think is the competition in the commercial banking industry local? *(1 = Completely local; 7 = Not local, but completely national)*

1	2	3	4	5	6	7

Q15. Do you think your banks pays more attention to practices and strategies of similar banks (e.g., banks with similar size, similar customers, etc.) than dissimilar banks? *(1 = Strongly disagree; 7 = Strongly agree)*

1	2	3	4	5	6	7

Q16. How significantly does the competition from S&L affect your business? *(1 = Not significant at all; 7 = Very significant)*

1	2	3	4	5	6	7

Q17. How significantly does the competition from credit unions affect your business? *(1 = Not significant at all; 7 = Very significant)*

1	2	3	4	5	6	7

Q18. How important is the role of regulatory institutions (e.g., FDIC) in spreading practices in the commercial banking industry? *(1 = Not important at all; 7 = Very important)*

1	2	3	4	5	6	7

Q19. Has the banking regulation become more stringent over the years (especially since mid-1980s)? *(1 = Strongly disagree; 7 = Strongly agree)*

1	2	3	4	5	6	7

Q20. Do you think major regulatory changes can make your existing strategies and practices less effective or obsolete? *(1 = Strongly disagree; 7 = Strongly agree)*

1	2	3	4	5	6	7

Q21. Are regulatory changes the most important factor that affect your strategies and practices than any other factors (e.g., competition, learning, etc.)? *(1 = Strongly disagree; 7 = Strongly agree)*

1	2	3	4	5	6	7

Q22. Do you think your bank can learn from failure of other banks as much as from highly successful banks? *(1 = Strongly disagree; 7 = Strongly agree)*

1	2	3	4	5	6	7

Q23. **Which do you think is the most important source of learning in the commercial banking industry?** ***(Please rank them in the order of importance. 1 = Most important, 8 = Least Important)***

( ) Own business experience
( ) Training
( ) Association/Meetings
( ) Successful strategies and practices of other banks
( ) Failure of other banks (e.g., bankruptcy, FDIC assistance, involuntary merger)
( ) Troubled banks
( ) Regulators and/or consultants
( ) Other, please specify ____________________

END OF APPENDIX 2

APPENDIX 3
Major Banking Legislations between 1982-1998

YEAR	LEGISLATION
1982	**DEPOSITORY INSTITUTIONS ACT OF 1982 (P.L. 97-320, 96 STAT. 1469)** Also known as Garn-St. Germain. Expanded FDIC powers to assist troubled banks. Established the Net Worth Certificate program. Expanded the powers of thrift institutions.
1987	**COMPETITIVE EQUALITY BANKING ACT OF 1987 (P.L. 100-86, 101 STAT. 552)** Also known as CEBA. Established new standards for expedited funds availability. Recapitalized the Federal Savings & Loan Insurance Company (FSLIC). Expanded FDIC authority for open bank assistance transactions, including bridge banks.
1989	**FINANCIAL INSTITUTIONS REFORM, RECOVERY, AND ENFORCEMENT ACT OF 1989 (P.L. 101-73, 103 STAT. 183)** Also known as FIRREA. FIRREA's purpose was to restore the public's confidence in the savings and loan industry. FIRREA abolished the Federal Savings & Loan Insurance Corporation (FSLIC), and the FDIC was given the responsibility of insuring the deposits of thrift institutions in its place. The FDIC insurance fund created to cover thrifts was named the Savings Association Insurance Fund (SAIF), while the fund covering banks was called the Bank Insurance Fund (BIF). FIRREA also abolished the Federal Home Loan Bank Board. Two new agencies, the Federal Housing Finance Board (FHFB) and the Office of Thrift Supervision (OTS), were created to replace it. Finally, FIRREA created the Resolution Trust Corporation (RTC) as a temporary agency of the government. The RTC was given the responsibility of managing and disposing of the assets of failed institutions. An Oversight Board was created to provide supervisory authority over the policies of the RTC, and the Resolution Funding Corporation (RFC) was created to provide funding for RTC operations.
1990	**CRIME CONTROL ACT OF 1990 (P.L. 101-647, 104 STAT. 4789)** Title XXV of the Crime Control Act, known as the Comprehensive Thrift and Bank Fraud Prosecution and Taxpayer Recovery Act of 1990, greatly expanded the authority of Federal regulators to combat financial fraud. This act prohibited undercapitalized banks from making golden parachute and other indemnification payments to institution-affiliated parties. It also

	increased penalties and prison time for those convicted of bank crimes, increased the powers and authority of the FDIC to take enforcement actions against institutions operating in an unsafe or unsound manner, and gave regulators new procedural powers to recover assets improperly diverted from financial institutions.
1991	**FEDERAL DEPOSIT INSURANCE CORPORATION IMPROVEMENT ACT OF 1991 (P.L. 102-242, 105 STAT. 2236)** Also known as FDICIA. FDICIA greatly increased the powers and authority of the FDIC. Major provisions recapitalized the Bank Insurance Fund and allowed the FDIC to strengthen the fund by borrowing from the Treasury. The act mandated a least-cost resolution method and prompt resolution approach to problem and failing banks and ordered the creation of a risk-based deposit insurance assessment scheme. Brokered deposits and the solicitation of deposits were restricted, as were the non-bank activities of insured state banks. FDICIA created new supervisory and regulatory examination standards and put forth new capital requirements for banks. It also expanded prohibitions against insider activities and created new Truth in Savings provisions.
1992	**HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1992 (P.L. 102-550, 106 STAT. 3672)** Established regulatory structure for government-sponsored enterprises (GSEs), combated money laundering, and provided regulatory relief to financial institutions.
1993	**RTC COMPLETION ACT (P.L. 103-204, 107 STAT. 2369)** Requires the RTC to adopt a series of management reforms and to implement provisions designed to improve the agency's record in providing business opportunities to minorities and women when issuing RTC contracts or selling assets. Expands the existing affordable housing programs of the RTC and the FDIC by broadening the potential affordable housing stock of the two agencies. Increases the statute of limitations on RTC civil lawsuits from three years to five, or to the period provided in state law, whichever is longer. In cases in which the statute of limitations has expired, claims can be revived for fraud and intentional misconduct resulting in unjust enrichment or substantial loss to the thrift. Provides final funding for the RTC and establishes a transition plan for transfer of RTC resources to the FDIC. The RTC's sunset date is set at Dec. 31, 1995, at which time the FDIC will assume its conservatorship and receivership functions.
1994	**RIEGLE COMMUNITY DEVELOPMENT AND REGULATORY IMPROVEMENT ACT OF 1994 (P.L. 103-325, 108 STAT. 2160)**

	Established a Community Development Financial Institutions Fund, a wholly owned government corporation that would provide financial and technical assistance to CDFIs. Contains several provisions aimed at curbing the practice of "reverse redlining" in which non-bank lenders target low and moderate income homeowners, minorities and the elderly for home equity loans on abusive terms. Relaxes capital requirements and other regulations to encourage the private sector secondary market for small business loans. Contains more than 50 provisions to reduce bank regulatory burden and paperwork requirements. Requires the Treasury Dept. to develop ways to substantially reduce the number of currency transactions filed by financial institutions. Contains provisions aimed at shoring up the National Flood Insurance Program.
1994	**RIEGLE-NEAL INTERSTATE BANKING AND BRANCHING EFFICIENCY ACT OF 1994 (P.L. 103-328, 108 STAT. 2338)** Permits adequately capitalized and managed bank holding companies to acquire banks in any state one year after enactment. Concentration limits apply and CRA evaluations by the Federal Reserve are required before acquisitions are approved. Beginning June 1, 1997, allows interstate mergers between adequately capitalized and managed banks, subject to concentration limits, state laws and CRA evaluations. Extends the statute of limitations to permit the FDIC and RTC to revive lawsuits that had expired under state statutes of limitations.
1996	**ECONOMIC GROWTH AND REGULATORY PAPERWORK REDUCTION ACT OF 1996 (P.L. 104-208, 110 STAT. 3009)** Modified financial institution regulations, including regulations impeding the flow of credit from lending institutions to businesses and consumers. Amended the Truth in Lending Act and the Real Estate Settlement Procedures Act of 1974 to streamline the mortgage lending process. Amended the FDIA to eliminate or revise various application, notice, and record keeping requirements to reduce regulatory burden and the cost of credit. Amended the Fair Credit Reporting Act to strengthen consumer protections relating to credit reporting agency practices. Established consumer protections for potential clients of consumer repair services. Clarified lender liability and federal agency liability issues under the CERCLA. Directed FDIC to impose a special assessment on depository institutions to recapitalize the SAIF, aligned SAIF assessment rates with BIF assessment rates and merged the SAIF and BIF into a new Deposit Insurance Fund.

END OF APPENDIX 3

APPENDIX 4
A Sample Interview Summary
(From An Interview with Members of Bank Administration Institute, Summer 1999)

Q: **Do banks learn from each other?**

- What else are we supposed to do?
- I would say the only thing we formally look at in terms of strategy is product mix and product development. Like how we compete with what we consider to be our peer group. There are commercial products in our industry that are completely the other direction than we are. In terms of formal structure, not as much as what you might think, but in terms of informal structure, a lot of things going on. For example, at this conference we talk to each other and learn from each other (who is doing what). The most valuable sessions we have so far was the peer group discussions where we talked among each other about what they have done, what they have succeeded, and what they have failed. We take a lot of that back.

Q: **Is it more like a conscious process or an unconscious process? Are you trying to consciously learn from each other?**

- Absolutely.
- We compare ourselves, and look at what is considered to be a high-performing bank. We have a peer group and we are constantly measuring against, or studying their strategies. But we rather compare ourselves to high-performing banks in the industry, find out what they are doing, and learn from their successes and failures. (Note: This is interesting. They try to learn from failure, but try to learn from failure of successful banks.) We also compare or try to learn from the entire financial service industry. We found that banks are behind the curve, so we try to go to other financial providers like insurance and investment banking. Yes, we are very intentional and conscious about learning.

Q: **How to obtain such information? Is it easy to obtain such information?**

- I think it is incredibly easy to obtain such information just because many data is available from the Internet (FDIC web-page; Most of us own web-pages.). The internet makes it really easy, but even without the Internet, we do a lot of things. Bankers are not typically good at training all levels of the bank, but some levels of management are very good about getting people into seminars as what we do here.

Q: Is competition in the commercial banking industry is mainly local? Do you pay attention to mainly local banks?

- No. It starts local, but the competition is not limited to local. You should first define what local is. We are located in Fairfield, west of Chicago, and in a number of commercial loan deals we go up against Chicago banks. Chicago banks do not have branch in our region. There is different competitive response when you go up against Chicago banks. So we pay attention to non-local banks. We pay attention also from the service perspective on what they are doing. That's benchmarking.
- The main competitor for our consumer loan business is the plastic in your wallet. It is easy to use and it comes from New York, and I am in Illinois. My competitors are not only in Illinois.

Q: It seems obvious that you are learning from each other. Then how do you learn from each other? Is there any mechanism for learning?

- One thing I would like to say is that I do not think the participants of this conference is typical, and may not be the representative of the industry, particularly smaller community banks.
- I don't think we are widely representative, but I see that happening a lot. We do learn from our competitors and peers, and from the industry as well. I don't know how good we are, but we try. What I see happening a lot is that we tend to look at our immediate peers (what they are doing), and the trend is followed as a whole. (Note: Population level learning?)
- Bankers were torn about whether or not to invest in the cost centers. A BAI magazine article argued the cost centers were not the right way. We dumped in a lot money into those and maybe that was not the right way. I think all of us have a real tendency to follow what we perceive at that day to be a reliever, and dump in a lot of money doing something not as much valuable.
- It is hard if you are in a position that bankers say that our competitors are doing X when we really need to do Y. It is awfully hard to diverge from that when everyone thinks X is good because they are making more money or doing better than us. It is really hard to go against that even if you should eventually go your own way.

Q: The banking industry has been a traditional industry with a long history, and many believe it is not changing much. What do you think about this common belief?

- Yes, the banking industry is a traditional industry. Old generation presidents followed traditional rules (i.e., the way banking should be). But most of the presidents are now new generation. I think you can see the industry changes. Conferences like this are an example. We have to compete at our local market area. We look at what somebody else is doing, and then make our own decision. More and more I see we talk with our peers and other banks in our area, and try to find out what customers really want. We are breaking our tradition. We are going out now, and we are beginning to actively search for what is really going on out there.

- I found what you (Jay) said was interesting: Because of the fact that the industry has been here so long, our practices and rules are relatively well set. What I struggle most is that there are no rules. There are no rules about how to hire people or how to make a loan. There rules are constantly changing.

Q: What are the forces behind the changes?

- Some of the changes we see came from our experiences. During the 1980s, most major banks in Texas failed. The survived banks survived because they were extremely conservative. They were not the performance leaders, but did not risk as much as those who failed risked. Those ones that were lucky enough or smart enough to work their way through the minefield and came out on the other side learn the lessons from their experience and from those who did not make. They understood they needed to be more competitive and should change to achieve that. We cannot let ourselves getting into that position again.

Q: How is failure perceived in the industry?

- It really depends on how you defined failure. Banks make mistakes all the time. We hate, as an industry, to admit it. We make huge costly mistakes all the time by purchasing wrong technology, putting all our egg into one basket, going down to a wrong road, doing a business with a wrong customer, and so on. But we do not want to publicize it. Those are still failures, not great failures, but financial failures.
- We bought a community bank, and it was a failure, and it was failure in terms of customers and shareholders. But in terms of FDIC taking charters off the wall, there is a huge stigma attached to it. I was in a Big Six in the mid-1980s, and watched many failures. Nothing has been recession tested for so long. We are on our way out now.
- When banks should sell off their shareholders equity, they are generally perceived as bad management. Because the general economy is so good, if you cannot make an average return, you are really incompetent. But there hasn't been a recession test for a long time. During the period you (Jay) refer to, especially during the mid-1980s, banks were not hiring or bringing in new

trainees. So you have a gap in generations. The older generations are now approaching to their retirement age, and they were in the positions of responsibility during the 1970s and 80s. And you have people who came after 1990s who have been in the business for 5 to 10 years. So there is a gap there. Who are going to be the people who remember this and have this organizational learning 10 years from now? There are not going to be many of them around, and we set ourselves up for repeating same mistakes.

Q: **What are your general reactions about failure of other banks?**

- It is really to easy get information about other banks. If you go to the Internet, you can easily examine the financial figures of other banks although you wouldn't be able to tell what led to that.
- Sometimes you know who the management (of a failed bank) was or who the key people were. So sometimes you can tell why they failed. They often fail because they did not make a good decision making or did not have a good succession.
- We also look at our own mortality. We do not want to talk about it, but at the same time we do not want to make a same mistake. We want to check ourselves to make sure if we are on the right track.
- When we observe a failure, we often think, "Uh oh, that could happen to us."

Q: **Between failure and near-failure (which defined as serious financial or management trouble), which one do you think has a better learning value?**

- Near-failure. I can learn more from how they came out of it. You can easily see how they went down from various sources including financial figures, and then how they came out of it or what they did to turn it around.
- If a bank cannot turn around, it is usually consolidated with another bank or sold to a new owner. What we learned is that there is too much over-capacity and not enough revenue to support current number of banks. In order for our institutions to be a survivor in all this, we need to understand what happened to near-failures and even the banks that did not turn around. Maybe those who we end up buying.
- They do not happen overnight. There is a course of action. Maybe a year. Maybe there is a whole string of opportunity they missed.
- The main reason of failure is bad management, bad decision-making, or bad board of directors.

Q: **As I mentioned earlier, I thought the banking industry is traditional and that there is not much change going on. When did all those changes happen?**

- There are still banks that do not change. Maybe some small community banks.
- According the book I read on the regulatory industry, it probably happened during the mid-1980s.
- Regulations that set in motion in the early 1980s. They are still affecting us.
- It is not only the law. The technology revolutions also affect us. We cannot go fast enough.
- I have been in 2 banks. What really helped us is the management. As we turn over our management, we got a new perspective and more proactive, that sort of management style coming in. Maybe younger style. That has turned us around.
- Generations of bankers are changing, and I think we are right in the middle of the change.
- There are more women in the higher level management.

Q: **Although it is not directly related to our topic for today, I found it was interesting that there are more women in the higher level management in the banking industry? Is there any reason you can think of?**

- Women have been traditionally positioned in the banking industry, maybe mostly in the operations. When there is a vacancy, women are frequently promoted because they have years of experience (they know what they should know) and it is hard to find qualified people from outside.
- In our world where the unemployment is relatively high. Qualified people are rare.

Q. **How important is the recency of information in the commercial banking industry?**

- I was the controller for a bank holding company. My chairman always used to look at 1 year as a short-term window and 5 and 10 years as a long-term window. We pushed, pushed, and pushed him to understand the short term is the next month. Short-term is 10Q and long-term is 10K. Long-term is a year. In the investment community, if you look at what market is doing, they demand us to have numbers immediately or as fast as we can get to them. I think the market is driving at a whole lot of speed, which we are required to perform to get the numbers out.
- It makes harder to plan for the long-term.
- I don't know how often you guys sit around and talk about planning, but it does not happen to us.

Q. **So the information in the banking industry changes fast, doesn't it?**

- Information is hot. It is going to be right now or a quarter or so.

Q. **It appears that regulation plays an important role in the commercial banking industry. Does it play any role in organizational learning?**

- Oh, yes. Oh, yes.
- Look at the interest rate sensitivity. When they added S to the CAMEL rating, everybody dug in to understand the interest risk and credit risk.
- In some areas, regulators help banks they regulate to get the most power because they compete with each other. In other areas, they are tightening up especially when regulators get political pressure to tighten up on something. Our bank is a case in the point. In our city, there are two large locally based branches of federal banks, and a small bank. When we look at the loan-to-deposit ratio, we have a very good loan-to-deposit ratio, which is about 70%. But there is one other bank in town with a slightly better loan-to-deposit ratio. The two large banks together control about 85% of the market. They were not even counted. Why? Because they didn't know what the local loan-to-deposit ratio was, but only for the entire institution over the whole region. It is obscure, and drives you crazy. So instead of "outstanding," we received "satisfactory." In another time, we received "outstanding" under the same condition, same institution, and same situation. So the regulation is a two-edged sword. In one area, regulators are helpful, but in other areas they are distraction.

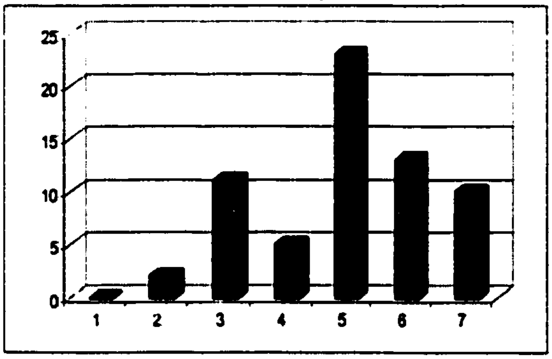
Q. **In terms of learning, which one do you think is more important? Regulators or your own research and observation?**

- My own.
- Regulators are always behind the curve.
- I am just going to say that they are behind.
- I can read all about interest rate sensitivity, but I can understand when I prepare for 10K.
- For interest rate sensitivity, you have to do what is right for your bank and then figure out how to justify it, and explain it in the way they want to hear.

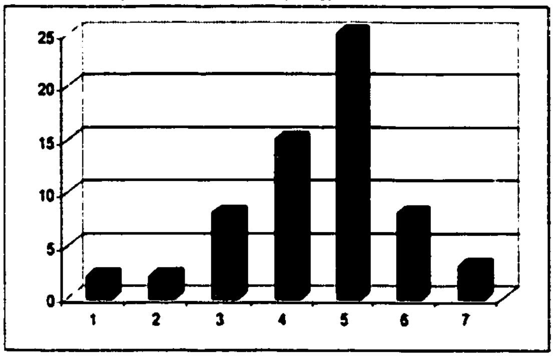
END OF APPENDIX 4

APPENDIX 5
Survey Summary

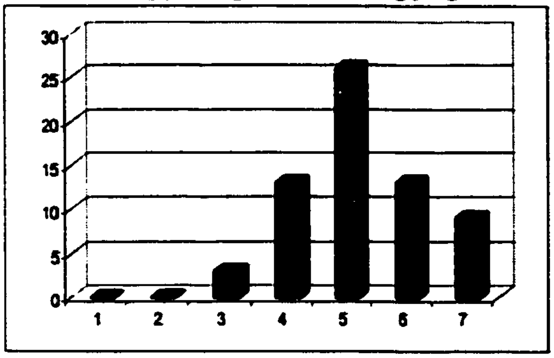
Q1. How much attention does your bank pay to strategies and practices of other banks? *(1 = No attention; 7 = Very much attention)*



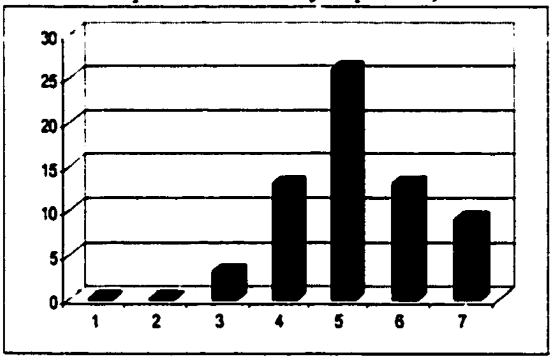
Q2. How easy is it to obtain information on the strategies and practices of other banks? *(1 = very easy; 7 = very difficult)*



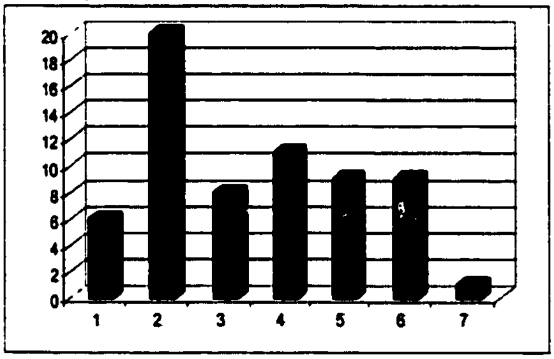
Q3. Do you think your bank "learns" from strategies and practices of other banks? *(1 = Strongly disagree; 7 = Strongly agree)*



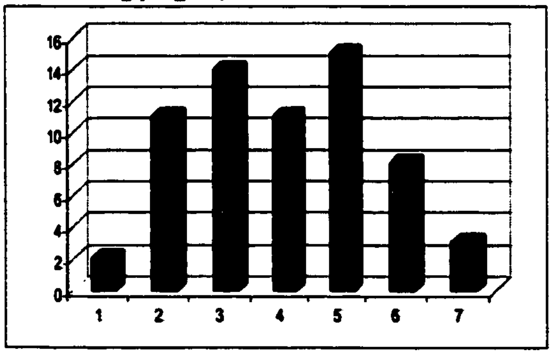
Q4. How important do you think is learning from strategies and practices of other banks to improve your own performance? *(1 = Not important; 7 = Very Important)*



Q5. How much attention does your bank pay to failure of other banks *(1 = No attention; 7 = Very much attention)*

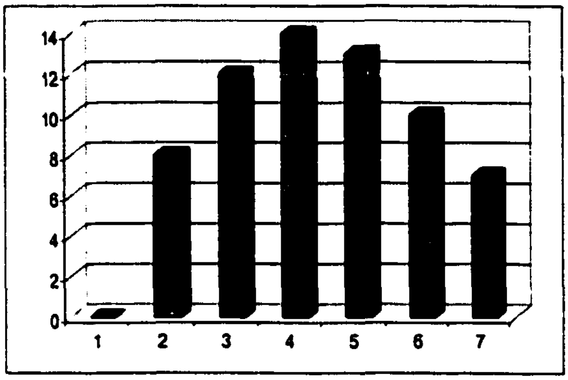


Q6. Do you think your bank "learns" from analyzing (or studying) failure of other banks? *(1 = Strongly disagree; 7 = Strongly agree)*

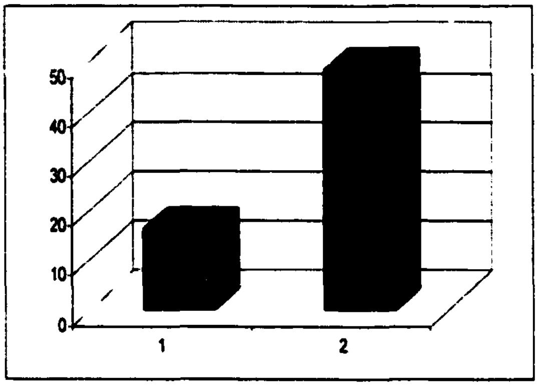


APPENDIX 5 (Continued)

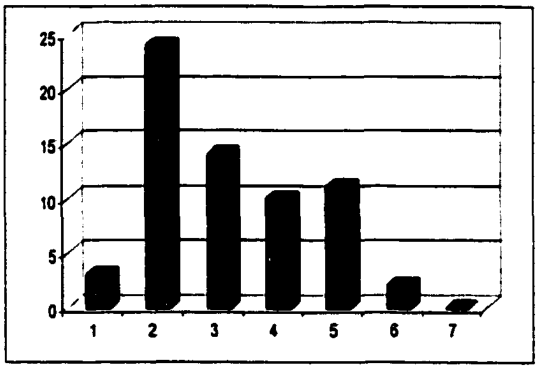
Q7. How important do you think is "learning from failure" of other banks in improving your own performance? *(1 = Not important; 7 = Very Important)*



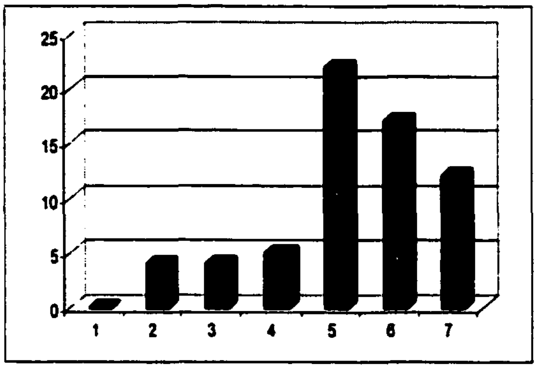
Q10. Which one do you think your bank can learn more lessons from? *(1 = Failed banks; 2 = Low-performing banks)*



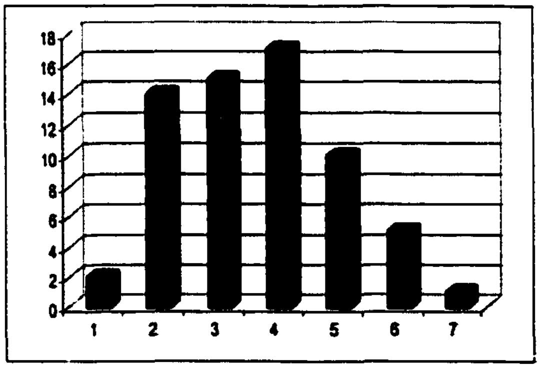
Q8. How much attention do you pay to low-performing or financially-troubled banks? *(1 = No attention; 7 = Very much attention)*



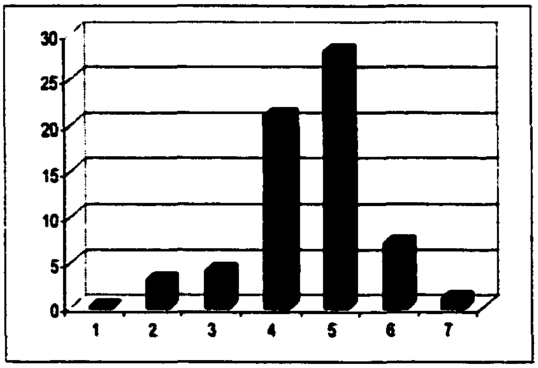
Q11. How fast do you think the commercial banking industry change? *(1 = Very slow; 7 = Very fast)*



Q9. Do you think your bank "learns" from analyzing (or studying) low-performing or financially-troubled banks? *(1 = Strongly disagree; 7 = Strongly agree)*

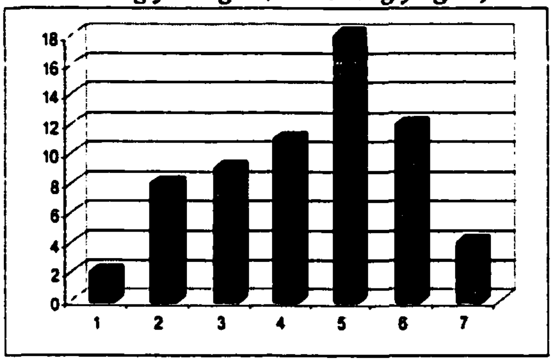


Q12. How fast does the competitive information become obsolete in the banking industry? *(1 = Very slow; 7 = Very fast)*

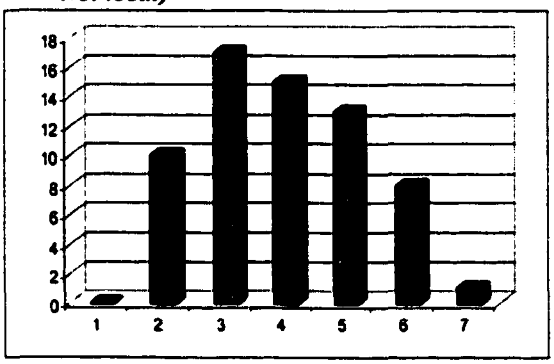


APPENDIX 5 (Continued)

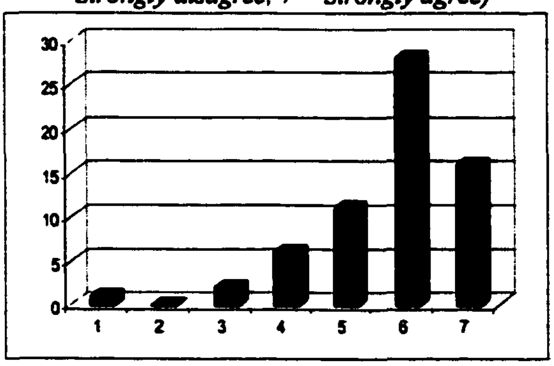
Q13. Do you think banks should change their strategies and practices frequently in order to achieve high performance? *(1 = Strongly disagree; 7 = Strongly agree)*



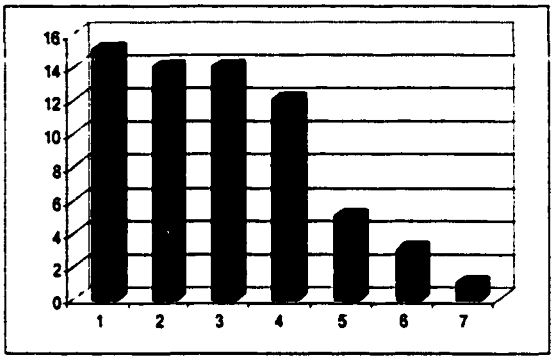
Q14. To what degree do you think is the competition in the commercial banking industry local? *(1 = Completely local; 7 = Not local)*



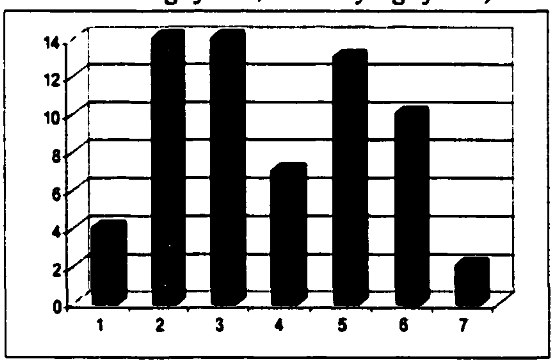
Q15. Do you think your banks pays more attention to practices and strategies of similar banks than dissimilar banks? *(1 = Strongly disagree; 7 = Strongly agree)*



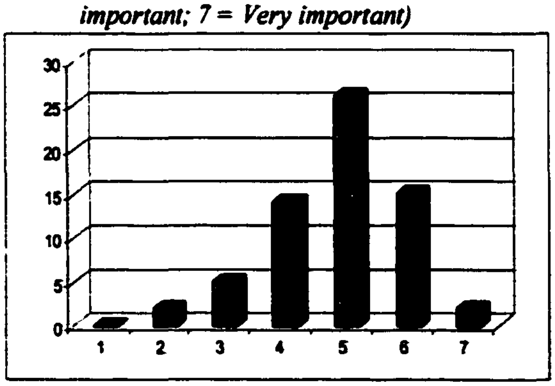
Q16. How significantly does the competition from S&L affect your business? *(1 = Not significant; 7 = Very significant)*



Q17. How significantly does the competition from credit unions affect your business? *(1 = Not significant; 7 = Very significant)*

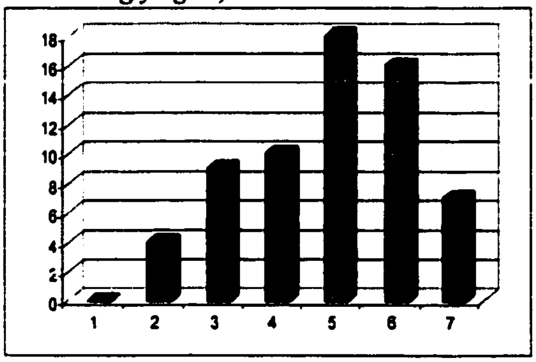


Q18. How important is the role of regulatory institutions in spreading practices in the commercial banking industry? *(1 = Not important; 7 = Very important)*

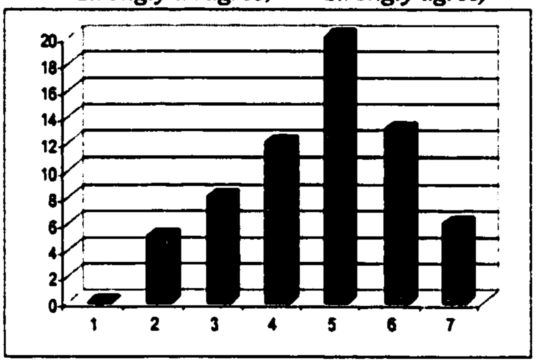


APPENDIX 5 (Continued)

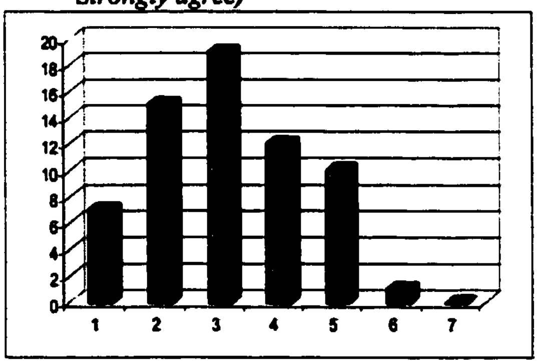
Q19. Has the banking regulation become more stringent over the years (especially since mid-1980s)? *(1 = Strongly disagree; 7 = Strongly agree)*



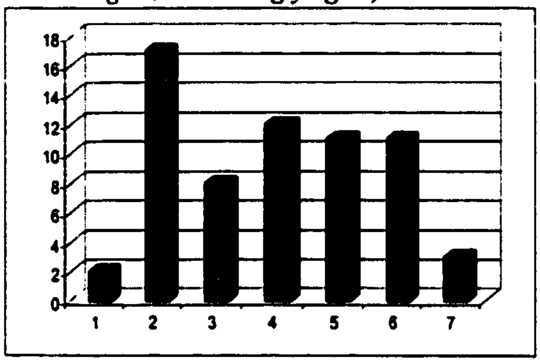
Q20. Do you think major regulatory changes can make your existing strategies and practices less effective or obsolete? *(1 = Strongly disagree; 7 = Strongly agree)*



Q21. Are regulatory changes the most important factor that affect your strategies and practices than any other factors? *(1 = Strongly disagree; 7 = Strongly agree)*



Q22. Do you think your bank can learn from failure of other banks as much as from highly successful banks? *(1 = Strongly disagree; 7 = Strongly agree)*



Q23. Which do you think is the most important source of learning in the commercial banking industry? *(Please rank them in the order of importance. 1 = Most important, 8 = Least Important)*

1. Successful strategies and practices of other banks
2. Own business experience
2. Training
4. Association/Meetings
5. Regulators and/or consultants
6. Troubled banks
7. Failure of other banks

END OF APPENDIX 5