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# Autopsy of the Banking Crisis: Examining the Impact of Director Characteristics on Bank Failures

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AUTOPSY OF THE BANKING CRISIS: EXAMINING THE IMPACT OF  
DIRECTOR CHARACTERISTICS ON BANK FAILURES

by  
Gregory L. Prescott

A Dissertation

Presented in Partial Fulfillment of Requirements for the  
Degree of  
Doctor of Business Administration  
In the  
Coles College of Business  
Kennesaw State University

Kennesaw, GA  
2014



**Coles College of Business  
Doctor of Business Administration**

**Dissertation Defense: April 28, 2014**

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The content and format of the dissertation are appropriate and acceptable for the awarding of the degree of Doctor of Business Administration.

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AUTOPSY OF THE BANKING CRISIS: EXAMINING THE IMPACT OF  
DIRECTOR CHARACTERISTICS ON BANK FAILURES

ACCEPTANCE

Accepted by the Graduate Faculty, Kennesaw State University, in partial fulfillment of  
the requirements of the Degree of Doctor of Business Administration.

Date: May 2014

*(placeholder)*

## DEDICATION

This achievement would not have been possible without the unending support of my immediate family, many close friends, and colleagues. I am especially indebted to my mother, who, unfortunately, passed away unexpectedly before I was able to accomplish this milestone. She was my rock, and she inspired me to pursue my dreams. She would have been immensely proud to know that I have finally achieved this long-sought goal. She is largely responsible for the person I am today, and I only wish that she were here to share in this joyous experience. I dedicate this project to her precious memory.

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## ABSTRACT

### AUTOPSY OF THE BANKING CRISIS: EXAMINING THE IMPACT OF DIRECTOR CHARACTERISTICS ON BANK FAILURES

by  
Gregory L. Prescott

The catastrophic impact of the recent financial crisis on the banking industry reverberated throughout the United States and had contagion effects worldwide. Congressional inquiries, media scrutiny, and the public alleged failure of the boards of directors to effectively discharge their governance responsibilities. The objective of this study was to investigate how certain characteristics of directors on a bank's board are related to bank failure—specifically whether the presence of directors with banking industry-specific experience and accounting expertise is related to a bank's likelihood of failure. The study also examined how board director tenure is related to bank failure.

I employed a matched-pairs design of 65 failed and 65 nonfailed U.S. commercial banks between 2008 and 2011. Matching was based on age, size, and geographic markets. Logistic regression was used to analyze the hypothesized associations.

At the board level, I found a statistically significant and negative association between director tenure and bank failure, supporting the resource dependence perspective. I found no significant association between bank work or bank director experience and bank failure. At the audit committee level, I found positive and significant relationships among bank work experience, bank director experience, and bank failure, suggesting overconfidence among audit committee members. Results for accounting

expertise indicated that presence of a director on the audit committee that previously worked as a chief financial officer, vice president of finance, or controller without a CPA designation (POTACCTG) was significant and negatively associated with bank failure. The average tenure of audit committee members was negatively and significantly associated with bank failure, and the interactions between tenure and the two categories of accounting expertise were also negatively and significantly related to bank failure. Together, these results provide support for the expertise hypothesis: As directors gain industry- and bank-specific knowledge during their tenure, they are able to provide more effective oversight and prevent their banks from failing.

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## CHAPTER 1

### INTRODUCTION

The objective of this study is to investigate how select characteristics of directors on a bank's board and its audit committee are related to the bank's likelihood of failure. According to the Federal Deposit Insurance Corporation (FDIC), 413 commercial banks failed<sup>1</sup> in the United States and Puerto Rico from January 2008 through the end of 2011.<sup>2</sup> However, the number of bank failures does not fully convey the magnitude of the banking crisis. These bank failures wiped out more than \$17 billion of market capitalization of the publicly owned banks and more than \$12 billion of balance sheet equity for the private banks.<sup>3</sup> Moreover, the failures cost the FDIC's Deposit Insurance Fund \$86.9 billion (FDIC Annual Reports, 2010, 2011).

These costs, however, do not include the substantial societal costs associated with financial crises. In their study of the effects of financial crises in both developed and emerging market countries, Reinhart and Rogoff (2009) note that the economic costs of financial crises tend to be severe and prolonged. Specifically, the authors report that on a peak-to-trough basis, "real housing price declines average 35 percent stretched out over six years, while equity price collapses average 55 percent over a downturn of about three

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<sup>1</sup>A bank failure is defined by the FDIC as the "closing of a bank by a federal or state banking regulatory agency. Generally, a bank is closed when it is unable to meet its obligations to depositors and others" (<http://www.fdic.gov/consumers/banking/facts/>). This is the definition of bank failure adopted in this study.

<sup>2</sup>See the Failed Bank List available at <http://www.fdic.gov>.

<sup>3</sup>For the failed public banks, market capitalization was calculated by multiplying the stock's high price for the fourth quarter of 2006 by the number of outstanding shares as of 12/31/2006. For the failed private banks, stockholders' equity was obtained for each bank as of 12/31/2006 from the Federal Financial Institutions Examination Council website at <https://cdr.ffiec.gov/public/>.

and a half years,” the unemployment rate rises an average of 7 percentage points during the down cycle, and government debt tends to explode, “rising an average of 86 percent in the major post-World War II episodes” (Reinhart & Rogoff, 2009, p. 3). Although their report was published in January 2009—well before the scale of the crisis in the United States was known—it is beyond contention that the recent banking crisis resulted in housing prices declining sharply, stock market indices losing significant amounts of market capitalization, high and persistent levels of unemployment, and an unprecedented ballooning of the federal budget deficit. The economic ramifications of bank failures persist even today as banks have become more rigid in making loans in a bid to avoid aggressive risk taking (Federal Reserve System Board of Governors, 2010). Moreover, the crisis related to banks is not over. In May 2012, JPMorgan Chase reported a trading loss that at the time was estimated at up to \$9 billion (JPMorgan Chase & Co., 2012; Silver-Greenberg & Craig, 2012), prompting immediate congressional action in the form of a U.S. Senate Banking Committee hearing in which the bank’s chief executive officer (CEO), Jamie Dimon, was grilled over the obvious failure of the bank’s risk management system (Goldfarb, 2012). According to the firm’s 2012 annual report to stockholders, the trading loss eventually resulted in a \$6.25 billion charge against earnings for that year.

Congressional inquiries into bank failures and media reports suggest that one of the factors that potentially contributed to the bank failures was ineffective oversight on the part of the internal watchdog, a bank’s board of directors. Shortly after the initial phase of the banking crisis, the Securities and Exchange Commission (SEC) announced plans “to look into whether the boards of banks and other financial firms conducted effective oversight leading up to the financial crisis” (Goldfarb, 2009, p. D1), part of a

broader effort on the part of the SEC to intensify scrutiny of the top levels of management and to give new powers to shareholders to shape boards.

However, we do not know if the failure of a bank's board of directors is a contributing factor to the recent bank failures because of the lack of research. Over the last three decades, researchers have directed substantial attention to characteristics of boards of directors and their potential impact on firm performance (see Bebchuk & Weisbach, 2010; Dalton, Daily, Ellstrand, & Johnson, 1998; Dalton, Daily, Johnson, & Ellstrand, 1999; Finegold, Benson, & Hecht, 2007; Zahra & Pearce, 1989). The findings of this literature remain mixed and inconclusive. Despite the vital role of commercial banks in the United States and international economic systems, there is considerably less academic research on the governance policies and board structures in the banking industry (Adams & Mehran, 2003; Macey & O'Hara, 2003). The limited bank-related studies reviewed later provide ambiguous and equivocal results; some show that board independence is not related to bank performance (e.g., Sierra, Talmor, & Wallace, 2006), whereas others show that CEO duality (where the CEO is also the chairman of the board) is positively related to bank performance (e.g., Simpson & Gleason, 1999). Some of the inconsistency of the findings of these studies may be attributable to differing approaches in measuring performance (Dalton et al., 1998; Zahra & Pearce, 1989). Accounting-based measures have been criticized as being subject to manipulation by management through accounting choices and for lacking standardization in the handling of international accounting conventions. While many researchers consider market-based measures of performance superior to accounting-based measures, they are often subject to forces



beyond the control of management and directors. An advantage of the current study is that it focuses on *bank failure*, an unambiguous and objective measure of performance.<sup>4</sup>

Additionally, no research has examined director characteristics in relation to the recent bank failures, which some researchers have characterized as resulting from excessive risk-taking by banks (Peni & Vähämaa, 2012). Echoing this sentiment, Federal Reserve Chairman Ben S. Bernanke attributed the financial crisis, in part, to “significant defects in ... risk management and risk controls” (Bernanke, 2010, p. 7). Furthermore, the deficiencies in risk management were not limited to large financial institutions. According to Bernanke, “risk-management weaknesses were spread throughout the financial system, including at many institutions that were neither large nor too-big-to-fail. For example, problems with commercial real estate lending were concentrated in regional and community banks” (Bernanke, 2010, p. 7).

Therefore, the objective of this study is to investigate how characteristics of directors on a bank’s board are related to the likelihood of bank failure. Specifically, the study examines how the presence of directors with banking industry-specific experience and accounting-based human capital on a bank’s board is related to the likelihood of bank failure. The study also examines how directors with bank-specific knowledge gained through longer service (tenure) on a bank’s board are related to bank failure. These director characteristics are also examined at the audit committee level because the audit committee is responsible for overseeing the risks related to financial reporting which, as the banking crisis demonstrates, did not adequately reflect the risks undertaken by bank management.

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<sup>4</sup>It must also be acknowledged that bank failure has the disadvantage of being a rather extreme measure of poor performance.

To execute the study consistent with prior bank failure research (Espahbodi, 1991; Lane, Looney, & Wansley, 1986; Meyer & Pifer, 1970), a matched-pairs design is adopted using a sample of U.S. commercial bank failures between 2008 and 2011. A matched-pairs design is appropriate because of the need to hand-collect most of the data required for the empirical analyses. For example, data on director characteristics need to be hand-collected from proxy statements filed with the SEC. As bank failure is a dichotomous variable, the study will use a logistic regression technique to model the likelihood of bank failure on director and audit committee member attributes while controlling for a number of other factors (Hair, Black, Babin, & Anderson, 2010).

This study makes several important contributions. Given the magnitude of the financial, economic, social, and psychological impacts of the recent financial crisis, this study provides a timely and first examination of the role of corporate governance in the recent bank failures. Regulators, media, and the public have criticized banks' boards of directors for failing in their fiduciary duties (Pozen, 2010). This study provides initial evidence to such claims and helps inform regulators with future policy formulations. Specifically, my findings indicate there is a *positive* and statistically significant relationship between directors possessing previous bank work experience and bank failure—at both the board level as well as the audit committee level. These results call into question the practice of banks having directors with previous bank work experience on their boards and suggests a level of expert overconfidence and cognitive entrenchment. Furthermore, by themselves, neither category of accounting expertise of interest in this study—work as a CPA or in public accounting or work as a chief financial officer, vice president of finance, or controller—was a significant deterrent to bank

failure at the board level, but work experience as a chief financial officer, vice president of finance, or controller was negative and significantly related to bank failure at the audit committee level.

Some of the most interesting findings of the current study relate to director tenure. As the average tenure of a bank's directors grew, the bank's likelihood of failure was significantly diminished. Moreover, when average board tenure was interacted with bank work experience and the two categories of accounting expertise studied here, the interaction between average board tenure and bank work experience and the interaction between average tenure and potential accounting expertise were negative and statistically significant in relation to bank failure. These findings lend support to the rationale behind the expertise hypothesis: Directors who have served for a greater number of years are more likely to have gained substantial necessary knowledge over time, and thus are in a better position to carry out their fiduciary responsibilities to stockholders and to provide necessary oversight of senior management than directors with shorter board service.

This study contributes to the corporate governance academic literature in several ways. First, it investigates the role of corporate governance in commercial banks, which are financial pillars of society. Our understanding of the role of corporate boards in a highly regulated but vital industry is hindered by the relatively limited and relevant research (Adams & Mehran, 2003; Macey & O'Hara, 2003). The banking industry typically has been excluded from prior governance research on grounds that it is regulated and has unique requirements that render banks less homogeneous than industrial companies. The implications of the catastrophic and recent bank failures suggest that the role of directors in the banking industry should not be ignored but instead

investigated. Second, this study examines how board and audit committee characteristics such as banking experience, accounting expertise, and tenure are related to bank failure. Prior research on board characteristics and bankruptcy has tended to focus on board independence, board size, and board composition (Daily & Dalton, 1994; Gales & Kesner, 1994). Therefore, the current study extends the rather limited body of literature on board characteristics and bankruptcy. Furthermore, no prior study in the banking industry could be identified examining the role of a director's industry-specific experience and accounting expertise in relation to either bank performance or bank failure. Therefore, this study contributes to the bank failure literature.

A third contribution of the current study is that it adds to the growing body of literature on accounting expertise that has taken on additional significance since the passage of the Sarbanes-Oxley Act of 2002 (SOX) and its requirement that a company's audit committee include at least one "financial expert" or disclose the reasons for not having such an individual. In light of the fact that the SEC adopted a broad definition of financial expertise when it developed the rules implementing the SOX requirement (Dhaliwal, Naiker, & Navissi, 2010), several researchers have subsequently investigated whether or not the type of financial expertise represented on the audit committee impacts market perceptions (DeFond, Hann, & Hu, 2005), accounting conservatism (Krishnan & Visvanathan, 2008), internal control quality (Krishnan, 2005), financial restatements (Abbott, Parker, & Peters, 2004), and accruals quality (Dhaliwal et al., 2010). Yet, commercial banks and other financial institutions often have been excluded from these studies' samples (Abbott et al., 2004; DeFond et al., 2005; Dhaliwal et al., 2010; Krishnan & Visvanathan, 2008). As a result, there is relatively little empirical evidence

on the relationship between accounting expertise and bank performance. The current study addresses this void.

This study also contributes to the literature on audit committee effectiveness in a different way. While previous research links audit committees to various measures of financial reporting quality (Abbott et al., 2004; Dhaliwal et al., 2010; Krishnan & Visvanathan, 2008), none has examined the potential role audit committee directors can play in relation to firm performance, and specifically, no study has investigated the association between audit committees and firm failures. Various risk management surveys and white papers document the important role audit committees can and should play in relation to risk management from not only the financial reporting perspective but also a strategic perspective (Beasley, 2010; COSO, 2010). The results suggest that directors with a CPA on the audit committee are not effective in preventing bank failure, but directors possessing experience as a CFO, controller, or similar senior executive accounting position are more beneficial in relation to bank failure. One explanation for this finding is that directors with a CPA designation may be focused on complying with generally accepted accounting principles (GAAP) and other bank reporting regulations, whereas non-CPA accounting experts bring greater and broader perspective in relation to bank performance.

Another contribution is that the current study employs an observable and objective outcome—bank failure—rather than relying on the much-criticized accounting- and market-based measures of firm performance used in most prior studies on firm performance and director characteristics. Market-based measures (e.g., stock prices) tend to respond to news, events, and economic developments that are not necessarily a direct

consequence of directors' actions. Accounting-based performance measures are predicated on a myriad of management choices and assumptions. Evaluating performance against such measures can be subjective. However, evaluating a bank's performance using failure provides a more objective analysis as the performance outcome is known (failed or not failed).

Finally, previous research on director characteristics and firm performance has tended to focus on large corporations—Fortune 500, S&P 500, and Forbes 500 companies—in part because of data availability (Dalton et al., 1998; Zahra & Pearce, 1989). Yet, few of those studies have controlled for interindustry differences (Zahra & Pearce, 1989). By focusing on the commercial banking industry in the United States during the four-year period in question, the study's sample comprises commercial banks with relatively homogeneous operational characteristics—thereby helping to control for unspecified factors that can threaten a study's internal validity (Sierra et al., 2006).

The remainder of this paper is organized as follows. Guided by theory in the areas of resource dependence and experience-based human capital, in the next section I review the relevant literature and develop testable hypotheses. The third section outlines the research method, including a description of the sample, an explanation of the study's variables, and discussion of the statistical technique used to analyze the data. The fourth section includes the results of the logistic regression tests of the study's hypotheses. The final section includes a discussion of the study's main findings, highlights the primary limitations of the study, and discusses avenues for future research.

## CHAPTER 2

### LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

In this section, I briefly review select studies on the association between board composition and firm performance, including bankruptcy. Next, I turn my attention to literature on the relationship between board composition and bank performance, and the association between board composition and bank failure. I use both the resource dependence and human capital perspectives throughout this discussion. As there are no previous studies on directors' industry experience or their accounting/financial expertise in relation to bank performance or bank failure, I draw on the audit firm industry specialization and audit committee literature to develop my hypotheses.

In their widely cited work on boards of directors and corporate financial performance, Zahra and Pearce (1989) indicate that much of that research has been guided by four distinct theoretical perspectives: the resource dependence view, the legalistic perspective, the class hegemony view, and agency theory. From a resource dependence perspective, an organization's success is dependent upon its ability to acquire scarce and essential resources (Pfeffer, 1972; Ulrich & Barney, 1984), such as knowledge and capital. Thus, boards of directors are viewed as providing vital resources or helping their firms secure essential resources through linkages to the external environment (Gales & Kesner, 1994; Pfeffer, 1972) that might otherwise be unattainable, thereby enhancing company performance. In fact, Zahra and Pearce report that compared with the legalistic

perspective, class hegemony, and agency theory, there is strong empirical support for the resource dependence view when investigating the relationship between boards and company performance.

### Boards of Directors and Firm Performance

It is not surprising that the impact of directors on their firms' financial performance has been the focus of much attention from the academic community. Moreover, in recent years a number of corporate governance reforms aimed at boards of directors and subcommittees of the board have been enacted by the U.S. Congress (for example, the Sarbanes-Oxley Act of 2002) and by national stock exchanges (the NASDAQ and the NYSE). Finegold et al. (2007) provide a comprehensive review of the academic research on corporate boards and firm performance by extending Zahra and Pearce (1989).

In their review, Finegold et al. (2007) include empirical studies published in the main peer-reviewed journals after 1989, the final year covered by Zahra and Pearce (1989). Finegold et al. identify 105 studies and organize their review around the following topics: duality in the board structure, insider-outsider ratio in the board structure, size and stability of the board structure, equity ownership of board members, director rewards, and shareholder activism and corporate governance ratings. They conclude that the extant literature on the subject provides little evidence of a systematic relationship between these various board characteristics and firm performance. However, the authors note that one meta-analysis of 27 studies that featured a board size variable found that having more directors was associated with higher levels of firm performance,



and that overall, the majority of studies on shareholder activism and firm performance report some positive impact.

Boards of directors and firm bankruptcy have been the focus of less academic attention. Two studies that examine this issue were published in 1994. Gales and Kesner (1994) use a matched-pairs design to examine a sample of 127 bankrupt and 127 nonbankrupt firms. The researchers conclude the following: (a) in the two-year period before a bankruptcy declaration, the boards of firms that filed bankruptcy were significantly smaller than their nonbankrupt counterparts; (b) bankrupt firms had significantly fewer outsiders on their boards in the two-year period preceding the bankruptcy declaration; (c) there was no significant difference in the number of outsiders on boards of bankrupt and nonbankrupt firms at the time of bankruptcy filing; and (d) bankrupt firms engaged in more changes to their boards than the nonbankrupt firms in the two years following bankruptcy. Daily and Dalton (1994) employ logistic regression to analyze certain corporate governance policies of 57 large U.S. firms that declared bankruptcy between 1972 and 1982 and 57 surviving matched firms. The researchers report that bankrupt firms were more likely than the surviving firms to have a CEO who also served as the chairman of the board and to have a higher proportion of affiliated directors. The researchers also report a significant and positive interaction between these two governance structures in distinguishing between the bankrupt and surviving firms.

#### Boards of Directors and Bank Financial Performance

There is markedly less academic research on the governance policies and board structures in the banking industry than for other industries (Adams & Mehran, 2003; Macey & O'Hara, 2003). In examining the relationship between board structure and

ownership and financial distress, Simpson and Gleason (1999) analyze data on 287 publicly traded commercial banks with complete financial and proxy statement availability for 1989. They report a lower probability of financial distress when the CEO is also the chair of the board, but other governance factors (management and board member equity ownership in the bank, board size, the percentage of insiders on the board, and CEO equity ownership) were not statistically significant. The researchers controlled for book value to total assets, nonperforming assets to total assets, market value per share to book value per share, and book value of total equity capital to total assets. Each was highly statistically significant ( $p < .01$ ) except for the ratio of market value to book value per share.

Using a sample of 67 of the 100 largest (in assets) commercial bank holding companies<sup>5</sup> on December 31, 1990 for which pay-performance sensitivity data were available and guided by the substitution-monitoring hypothesis, Mishra and Nielsen (2000) find that “a substitution relation exists between pay-related incentives and the tenure of independent outside directors relative to the CEO” (Mishra & Nielsen, 2000, p. 65), suggesting that these two variables may be substituted for one another in order to maintain bank performance. Overall, the authors report a significant and positive relationship between board independence (measured as the percentage of outside directors on the board and as the relative tenure of the outside directors in relation to the CEO) and bank performance (measured as both return on assets [ROA] and return on equity [ROE]). While the study’s results are reported based on the dependent variable of ROA only, the authors indicate they found similar results when ROE was the dependent

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<sup>5</sup>The Federal Financial Institutions Examination Council website defines a bank holding company as an entity that owns and/or controls one or more U.S. banks or one that owns, or has a controlling interest in, one or more banks.

variable. Other study variables include size, the ratio of market value to book value, CEO pay-related incentives, ownership by inside directors, ownership by outside affiliated directors, ownership by outside independent directors, CEO duality, the interaction between board independence and CEO pay-related incentives, and the interaction among board independence and CEO duality, CEO ownership, CEO tenure, and state takeover restrictions. The following variables were statistically significant ( $p < .05$ ) under both board independence measures: percentage ownership by outside affiliated directors, percentage ownership by outside independent directors, CEO duality, and the interaction of board independence and CEO duality. The market-to-book ratio was significant only when board independence was defined as percentage of outside directors, whereas CEO pay-related incentives and the interaction of board independence and CEO pay-related incentives were statistically significant ( $p < .05$ ) only when board independence was defined as the relative tenure of outside directors in relation to the tenure of the CEO.

In their study of CEO ownership and the performance of the 100 largest U.S. bank holding companies included in Stern Stewart & Co.'s database for the years 1995–1999, Griffith, Fogelberg, and Weeks (2002) use economic measures of bank performance and report a nonlinear relationship between CEO ownership and bank performance. The authors find that performance improves “until the CEO’s holdings reach approximately 12 percent and then declines until his or her ownership reaches 67 percent” of the bank (Griffith et al., 2002, p. 182). In attempting to explain their results, the authors suggest that due to inadequate diversification of their own investments, CEOs may accept suboptimal returns in order to reduce bank-specific risk. The authors do not find an association between CEO duality and bank performance. The study’s economic measures

of performance include Economic Value Added (EVA), Market Value Added (MVA), and Tobin's Q. For measures of ownership and control, the researchers use the following variables: CEO duality, CEO tenure, CEO age, the ratio of insiders on the board, the ratio of insiders' ownership in the holding company to total ownership, and the ratio of the CEO's ownership to total ownership. After calculating correlation coefficients, the authors conclude that only CEO duality and the ratio of CEO's ownership to total ownership were sufficiently uncorrelated with the other variables to be included in the model.<sup>6</sup> Therefore, the CEO duality variable and the two ownership variables (for insiders and the CEO) were retained and the other ownership and control variables were dropped. When testing for the significance of CEO duality, the researchers add as explanatory variables the log of total assets and the ratio of total loans to total assets; these additional test variables had been used as control variables in previous models employed in the study. Overall, the study's results include a finding that there is a significant and negative relationship among CEO ownership and the MVA and Tobin's Q measures of bank performance; when bank performance is measured as EVA, the authors report a significantly positive nonlinear relationship between CEO ownership and performance.

From a sample of 35 bank holding companies over a period from 1959–1999, Adams and Mehran (2005) fail to find evidence of a systematic relationship between the proportion of outside directors and bank holding company performance.<sup>7</sup> Contrary to

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<sup>6</sup>A review of the correlation matrix suggests the authors did not use an established correlation threshold for the Pearson Correlations measures in evaluating the potential for multicollinearity and their decision to eliminate certain variables. Also, the authors did not report how they made their decisions to eliminate variables based on the significance of the correlations between the variables.

<sup>7</sup>The authors initially focus on the period from 1986–1999, a period associated with increased merger and acquisition activity and the widespread adoption of the bank holding company structure in the banking industry. In attempting to develop alternative explanations for their results, the authors subsequently extend

evidence for nonfinancial firms, the authors did not find a negative relationship between board size and bank holding company performance. The following test variables are included in the study: board size, fraction of noninsiders on the board, a capital ratio, a volatility of stock price measure, total assets, bank holding company organizational structure variables (the number of Tier 1 subsidiaries, the number of Tier 1 foreign banking subsidiaries, the number of foreign nonbanking subsidiaries, the number of U.S. states of Tier 1 subsidiaries, the average number of U.S. subsidiaries per state, and the relative size of the lead bank in the holding company), and bank holding company performance measures (Tobin's Q and ROA). The authors also include the following control variables: number of committees, committee members divided by number of committees, percentage of committees chaired by outsiders, the average number of committees per chair, meetings per year, meeting fees paid to directors, average other directorships for outsiders, average other directorships for insiders, dummy if board interlock exists, percentage of CEO ownership, dummy if directors are paid deferred compensation, and dummy if directors are paid deferred stock compensation. The following variables were statistically significant when bank performance was measured as Tobin's Q and as ROA: the capital ratio, the volatility of stock price (in most model specifications), the number of Tier 1 subsidiaries, and the number of Tier 1 foreign nonbanking subsidiaries (in two of four model specifications). In addition, the following variables were significant only when bank performance was measured as ROA: the number of U.S. states of Tier 1 subsidiaries, the relative size of the lead bank, the number of committees, the meeting fees paid to directors, the average of other directorships for

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their analysis to include the period from 1959–1985, when bank mergers and the bank holding company structure were less common.

insiders, the percentage of CEO ownership, the existence of a board interlock, and directors being paid in deferred stock compensation.

In their study of 76 bank holding companies from 1992–1997 for which executive compensation data were available in S&P’s ExecuComp database, Sierra et al. (2006) report that the relative strength of the board of directors is positively associated with bank size and bank financial performance measured as ROA and negatively associated with CEO compensation. The authors create an overall measure of board strength from a composite of seven individual board characteristics, each of which is given equal weight. The following characteristics are incorporated into the board strength variable: percentage of board members who are executives of the company, percentage of outside directors in which a company officer serves on that outside director’s board, percentage of directors who either are family members of the CEO or have contracts with the company, percentage of directors who are outside directors and sit on at least two other boards, percentage of directors who are outside directors and over the age of 65, whether the CEO also serves as the chairman of the board, and the total number of board members. For the board strength variable, the authors assign a value of one if the composite score is in the bottom quartile, two if it is in the two middle quartiles, and three if it is in the top quartile. The authors indicate that the board strength variable was constructed such that “a higher value represents a potentially more independent and effective board and therefore a theoretically stronger board” (p. 111). (However, the authors do not discuss how the individual characteristics composing board strength are related to bank performance.) In addition to the board strength variable, the study also includes variables for CEO compensation (a composite variable including salary, bonus,

long-term incentive plan payouts, the value of restricted stock granted during the year, the value of employee stock options granted during the year, and stock appreciation rights granted during the year), total assets, the ratio of market value of equity to the book value of equity, the tenure of the CEO in years, the sensitivity of the CEO's stock and options holdings to a 1% change in stock price, regulatory supervisory ratings, the proportion of risk-priced funding to total assets, and returns to stockholders (measured as dividends plus stock appreciation divided by beginning of the year share price). The only significant explanatory variables for bank performance were board strength, total assets, and CEO compensation.

Using a sample of 69 large commercial banks from 6 developed countries (Canada, U.S., U.K., Spain, France, and Italy) and financial information for the years 1995–2005, Andres and Vallelado (2008) report significant inverted U-shaped relationships between bank performance and board size, and between the proportion of nonexecutive directors and bank performance. No significant results are reported for number of board meetings. The results indicate diminishing returns after board size and the percentage of outside directors reach optimum levels.<sup>8</sup> These results are consistent across the three measures of bank performance including Tobin's Q, ROA, and shareholders' annual market returns. Control variables include size, business mix, regulation, market power of the banking industry, bank ownership structure, and investors' legal protection.

In the single study addressing the relationship between certain corporate governance policies and the financial performance of non-publicly traded banks, Cooper

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<sup>8</sup>In this study's sample, the optimum board size was approximately 19 directors, and the optimum percentage of outside directors was approximately 80%.

(2009) uses confidential data contained in regulatory examinations and financial data as of year-end 2005 for 296 community banks in the United States. Using a simultaneous regression approach, the researcher finds statistically significant and positive relationships between each of the following variables and bank performance (measured as ROA): the size of a bank, a bank's CAMELS rating, a bank CEO's tenure, and board size. CAMELS ratings—explained in more detail later—are designed to assess the overall financial health of banks and are assigned by bank regulatory bodies after periodic on-site bank examinations. Among the other variables included in the study are the percentage of insiders on the board, the total equity divided by total assets, CEO duality, the percentage of women directors, and the percentage of directors over the age of 65.

In summary, it is fair to say that research has failed to document a consistent and clear association between corporate governance variables and the financial performance of both commercial firms and banks. The board composition research has largely been motivated by agency relationships, and therefore the focus has been on the boards' monitoring role of management. A striking omission from all of the prior bank-related studies is the industry experience and accounting expertise of the directors. This study addresses this shortcoming and complements previous research—which has tended to employ agency theory—by assessing how the resources provided by directors may affect bank survival. It does so by employing theories on experience-based human capital and resource dependence.



### Importance of Human Capital and Resource Dependence Theories

In their widely cited work on boards of directors and corporate financial performance, Zahra and Pearce (1989) propose a model that includes three important board roles: service, strategy, and control. Service involves enhancing the company's reputation, helping the company establish contacts with its external environment, and providing counsel to the company's senior executives (Carpenter, 1988; Louden, 1982; as cited in Zahra & Pearce, 1989). Their model suggests that the strategic role includes directors providing advice and counsel to the company's senior executives, initiating their own analyses of strategic options and suggesting strategic alternatives. The control function requires directors to evaluate the performance of the company and senior executives, and protect shareholders' interests (Chapin, 1986; Louden, 1982; as cited in Zahra & Pearce, 1989). Despite the multidimensional nature of directors' roles in the corporate governance function, researchers have most often focused on the board's responsibility to monitor or control senior management as a means of protecting stockholders' interests (Dalton et al., 1998; Hillman & Dalziel, 2003; Zahra & Pearce, 1989). It is not surprising, therefore, that researchers have relied heavily on agency theory to guide their research (Daily, Dalton, & Cannella, 2003; Finegold et al., 2007; Hillman & Dalziel, 2003; Zahra & Pearce, 1989), although there is only a moderate level of empirical support for agency theory in this context (Zahra & Pearce, 1989).

An alternative theoretical perspective—resource dependence theory—has been employed to a significantly lesser extent than agency theory when exploring the relationship between boards and firm performance (Hillman & Dalziel, 2003), yet there is strong but somewhat limited empirical support for the tenets of resource dependence in

this context (Zahra & Pearce, 1989). From a resource dependence standpoint, directors possess skills, talents, and abilities acquired through education and experience that enhance the resources available to the boards they serve on (Hillman, Cannella, & Harris, 2002).

Despite the fact that directors are widely acknowledged as providing senior management with advice and counsel, the topic of directors' knowledge and skills in fulfilling their governing responsibilities has received little attention from corporate governance scholars (Kor & Sundaramurthy, 2009). Instead, it appears that until recently there has been an implicit assumption that directors possess the depth of knowledge and skills required by their fiduciary roles. Within the last few years, however, researchers have begun to question that assumption (Carpenter & Westphal, 2001; Carter & Lorsch, 2004).

A component of resource dependence is that of human capital. Becker (1993) defines human capital as an individual's set of competencies, knowledge, and skills. Such capital is typically developed through investments in education, training, and professional work experience. There is a substantial body of research focusing on the human capital of top management teams and professional employees (Hitt, Bierman, Shimizu, & Kochhar, 2001; Kor & Leblebici, 2005). With respect to boards of directors, some scholars have proposed that directors' human capital impacts their ability to provide advice and counsel to management and to fulfill their monitoring and oversight responsibilities (Hillman & Dalziel, 2003). Cravens and Wallace (2001, p. 9) posit that directors, especially outside directors, "bring their individual expertise to the board based upon their own knowledge

and experience. This expertise often stems from a director's employment history with various firms during his or her career.”

The theoretical arguments for applying resource dependence and human capital theories to boards of directors are supported by anecdotal evidence. For instance, although Citigroup had 18 directors (including 16 who were independent), in early 2008, only one of those directors had ever worked at a financial services firm, and that individual was simultaneously the CEO of a large entertainment company (Pozen, 2010). Also, in its 2011 Public Company Governance Survey, the National Association of Corporate Directors (NACD) reports that public company directors cited “specific industry experience” and “financial expertise” as two of the top three attributes and experiences that are most important when they recruit new directors to their boards (NACD, 2011). The third attribute was “leadership experience,” which was not defined in the open-ended survey question. As the data sources used in this study do not include information on directors' leadership experience, this attribute will not be included in this study.

Moreover, in response to calls by investors for additional information that would enhance their ability to make informed voting and investing decisions, in 2009 the SEC released a final rule regarding proxy disclosure enhancements that became effective February 28, 2010 (SEC, 2009). Those enhancements:

require companies to disclose for each director and any nominee for director the particular experience, qualifications, and attributes or skills that led the board to conclude that the person should serve as a director for

the company as of the time that a filing containing this disclosure is made with the Commission. (SEC, 2009, p. 34)

The new rule also requires disclosure if “particular skills, such as risk assessment or financial reporting expertise, were part of the specific experience, qualifications, attributes or skills that led the board or proponent to conclude that the person should serve as a director” (SEC, 2009, p. 35). The final rule requires that these disclosures be made annually. Thus, it is clear that regulators and directors are placing increasing importance on both the industry experience and the financial expertise of directors.

#### Banking Industry Expertise

It is widely acknowledged that human capital is developed over time and that individual directors bring unique resources to their organizations as a result of their professional backgrounds, their technical skills and expertise, their industry work experience, and their life experiences (Kesner, 1988). Occupational differences, one aspect of human capital, “reflect the heterogeneity of resources such as expertise, skill, information, and potential linkages to other external constituencies” (Hillman et al., 2002, p. 749).

In an effort to develop a more complete understanding of boards, Hillman, Cannella, and Paetzold (2000) develop a taxonomy with four distinct categories of directors: insiders, business experts, support specialists, and community influentials. According to this framework, support specialists are directors who provide specialized expertise on law, banking, insurance, or public relations and are typically employed (currently or formerly) as lawyers, bankers, marketing professionals, and public relations

experts.<sup>9</sup> Support specialists are somewhat analogous to directors with bank work experience and bank director experience—the types of directors that are the focus of this study.

Resource dependence theory asserts that directors bring to their boards a bundle of resources: expertise, different perspectives, relationships with other firms, and legitimacy (Hillman et al., 2002). Pfeffer and Salancik (1978) state that directors benefit their firms by providing vital resources—either directly or by assisting them through their connections with external parties—and by helping management to set and monitor the firm’s business strategies. “Resource dependence theory embraces the view that board members enhance the value of the firm through developing and monitoring a firm’s strategic responses to deal with the dynamic and competitive environment” (Sharma, Boo, & Sharma, 2008, p. 107).

A number of studies published in recent years employ the resource dependence perspective and contend that directors’ ability to fulfill their fiduciary responsibilities is predicated on their relevant industry knowledge, their professional business experience, and their basic understanding of the firm’s competitive position. Thus, a board composed of directors with industry-specific experience is likely to perform its duties more effectively (Cohen, Wright, & Krishnamoorthy, 2007; Hillman & Dalziel, 2003; Sharma, 2006). In fact, Robert Pozen, who has been the president or chairman of two global financial firms, an independent director of several large industrial companies, and a well-

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<sup>9</sup>Insiders are defined as those directors who currently serve or have served as active managers, employees, or owners of the firm. They provide the board with information about the firm itself and its competitive environment. Business experts are defined as active or retired executives in other for-profit organizations and directors who serve on other corporate boards. They serve as sounding boards for ideas and provide alternative viewpoints on internal and external problems. Community influentials are defined as directors who bring to the board nonbusiness perspectives on issues, problems, and ideas. They often have expertise about and influence with powerful community groups.

known corporate governance scholar, recently proposed the concept of a professional board (Pozen, 2010). One aspect of his proposal is that most directors would be required to have extensive expertise in their companies' lines of business.

In the absence of prior studies on industry-specific experience in the banking industry, I draw on literature on human capital, auditor industry specialization, and audit committee industry specialists to support my first hypothesis related to the presence of directors with bank work experience on a bank's board of directors.

Several studies support the view that human intellectual capital positively impacts firm value (Black & Lynch, 1996; Carpenter, Sanders, & Gregersen, 2001; Hitt et al., 2001). However, these studies have tended to focus on the intellectual capital of employees (Kalyta, 2011). Only recently have researchers begun to consider the intellectual capital of a company's directors and its potential to positively impact company performance and value. For instance, McDonald, Westphal, and Graebner (2008) propose and find support for the idea that outside directors' previous experience with acquisitions has a positive impact on the success of their companies' corporate acquisitions.

Kalyta (2011) takes a broader perspective and proposes that a board's intellectual capital will positively influence firm value in knowledge-intensive industries, such as information technology, chemical products, and pharmaceuticals. Specifically, he uses the number of scientists on the board as a proxy for the board's intellectual capital and posits that "boards with strong scientific expertise are more likely to make and approve effective strategic decisions concerning R&D related acquisitions, major product innovations or new scientific initiatives than boards with limited scientific experience"

(Kalyta, 2011, p. 3). Using the population of publicly listed U.S. companies for 2008, Kalyta first identifies companies with one or more directors with a doctoral degree (the author uses the terms “director-scientist” and “director with a Ph.D.” interchangeably) and then identifies companies that appointed at least one such director between 2004 and 2008. Using Tobin’s Q as the measure of firm value, Kalyta reports that the appointment of a scientist director in a knowledge-intensive industry is associated with a sizable increase in firm value, but he finds no such significant association in other industries. Kalyta also finds that the appointment of scientist directors in knowledge-intensive industries increases the stock price in a three-day window around the announcement by 1%, while the 12-month postevent period is characterized by a positive abnormal return of up to 2.5%. The same effect is not observed in other industries. Overall, these results suggest that “scientists on the board of directors constitute a significant asset and a driver of superior performance in knowledge-intensive sectors” (p. 5) and that “directors’ knowledge has a significant impact on firm value, over and above other measures of ‘good’ governance used in previous research” (p. 5).

While not related to firm performance, the literature on auditor-industry specialization and audit committee industry experience further illustrates the value of industry-specific knowledge to the firm. The central premise of the auditor-industry specialization literature is that specialized industry knowledge is critical for auditors to discharge their professional responsibilities with high quality. For instance, Krishnan (2003, p. 2) states that “auditors who have a more comprehensive understanding of an industry’s characteristics and trends will be more effective in auditing than auditors without such industry knowledge.” The established auditor-industry specialization

literature has consistently demonstrated that specialist auditors provide higher quality services than auditors who are not industry specialists (Balsam, Krishnan, & Yang, 2003; Bedard & Biggs, 1991; Johnson, Jamal, & Berryman, 1991; Krishnan, 2003; Owoso, Messier, & Lynch, 2002; Romanus, Maher, & Fleming, 2008), and that these specialist auditors are more compliant with professional auditing standards (O'Keefe, King, & Gaver, 1994). Collectively, this literature concludes that the quality of the audit and the resulting financial statements is higher when the auditor is an industry specialist than when the auditor is not an industry specialist.

Market reaction studies (e.g., Knechel, Naiker, & Pacheco, 2007) provide further evidence of the value of industry specialist auditors. Specifically, Knechel et al. report that the market reacts positively to firms switching from a nonspecialist auditor to an industry specialist auditor, while the market's reaction is negative when the successor auditor is not an industry specialist.

In a study focusing on industry expertise on the audit committee of the board of directors, Cohen, Hoitash, Krishnamoorthy, and Wright (2014) find a significantly lower likelihood of a firm incurring an accounting restatement when industry experience is represented on the audit committee. They posit that directors with experience in their firms' industries will have a better understanding of the business and accounting issues, and therefore be more capable of identifying complex issues that may not be apparent to directors without such experience. However, Cohen et al. do not examine how industry-relevant experience of the directors is related to either firm performance or firm failure, a gap which the current study is designed to address. Furthermore, Cohen et al. exclude



regulated industries (including commercial banks) from their sample. I am not aware of any published studies that examine the effects of directors' industry experience in banks.

In light of the evidence suggesting that industry specialist auditors provide higher quality service than non-industry specialist auditors, and the finding that industry experience of directors serving on the audit committee of the board of directors brings more effective governance to the firm, it is a reasonable conjecture that directors with commercial banking experience will bring similar industry-relevant expertise to their boardroom responsibilities. Similarly, it is reasonable to conclude that directors with experience on the boards of other banks (either previous or contemporaneous experience) will also bring industry-specific expertise to their roles that will enhance their banks' survival prospects in the event of a difficult economic environment. Therefore, given the theoretical support from the resource dependence and human capital theories, and empirical results from the prior nonbanking literature suggesting a link between human intellectual capital and firm value, the first research hypotheses are framed as follows:

H1: Banks with directors on the board possessing bank work experience will be associated with a lower likelihood of failure.

H2: Banks with directors on the board possessing bank director experience will be associated with a lower likelihood of failure.

#### Accounting and Financial Expertise

In response to numerous well-publicized accounting scandals early in the last decade, the U.S. Congress passed the Sarbanes-Oxley Act of 2002 (SOX). Section 407 of SOX required the SEC to adopt rules mandating that the audit committee of the board of directors of public firms include at least one member who is considered a "financial

expert” or disclose reasons for not adopting this requirement (Dhaliwal et al., 2010). Although SOX outlined a rather restrictive definition of financial expertise, including only individuals with accounting or auditing experience, the SEC ultimately adopted a broader definition of financial expertise that includes not only accounting but also certain types of nonaccounting (finance and supervisory) financial expertise. Essentially, the SEC’s definition of a financial expert includes accountants as well as those with experience as an investment banker, as a financial analyst, or in any other financial management role, and individuals with supervisory experience overseeing the preparation of financial statements—including CEOs and company presidents (Dhaliwal et al., 2010).

Several studies using pre-SOX data find that the presence of a financial expert on the audit committee is positively related to the quality of financial reporting (Abbott et al., 2004; Bédard, Chtourou, & Courteau, 2004). Similarly, Krishnan (2005) finds that audit committees with financial expertise are significantly less likely to be associated with the incidence of internal control problems, such as reportable conditions and material weaknesses. The results of this literature are commensurate with the market’s perception of appointing directors with financial expertise. Public companies were not *required* prior to the enactment of SOX to have at least one member of the audit committee who met the definition of a financial expert (or disclose reasons for not having one), but some companies chose to do so. DeFond et al. (2005) examine three-day cumulative abnormal returns around the announcement of 702 newly appointed outside directors assigned to audit committees. They observe a positive market reaction to the appointment of accounting financial experts to audit committees but no such reaction to the appointment of nonaccounting financial experts. This finding suggests that not all

types of financial experts are perceived by the market as providing value; accounting experts are presumed to provide more relevant expertise.

It is not surprising that post-SOX studies show that accounting experts are associated with a higher quality system of internal controls over financial reporting and higher quality financial statements (Dhaliwal et al., 2010; Hoitash, Hoitash, & Bedard, 2009; Krishnan & Visvanathan, 2008; Naiker & Sharma, 2009; Zhang, Zhou, & Zhou, 2007). The general idea emerging from these studies is that accounting experts have a better understanding of the complexities associated with financial reporting in a post-SOX environment and, leveraging their expertise, they are better able to identify and take corrective actions if the financial information contains irregularities or mistakes.

It is important for management and other stakeholders to make economic decisions based on information that is fairly and correctly prepared. Failure to do so can lead to poor-quality decisions and adverse economic consequences. The Financial Accounting Standards Board's (FASB) conceptual framework indicates that the objective of general purpose financial reporting is to provide financial information about an entity that is useful to existing and potential investors, lenders, and other creditors in making decisions about providing resources to that entity (FASB, 2010). If financial information is to be useful to decision makers, it must be relevant (capable of making a difference) and faithfully represent what it purports to represent. Research supporting the concept of financial information that is useful in a decision-making context in the banking industry shows that bankers tend to make incorrect company failure prediction judgments when they use financial information that is tainted, but make better-quality company failure prediction judgments when the information is relatively free from the risk of

misrepresentation (Sharma & Iselin, 2003a, b). Extending this notion to boards of directors and firm performance suggests that boards will be able to make more-informed economic decisions about the firm if the financial information presented to them is of high quality.

The prior research reviewed above shows that directors with accounting expertise are associated with higher quality financial information. Furthermore, when companies seek advice and consulting services on turnaround strategies, they often turn to accounting firms such as the Big 4 (KPMG, E&Y, PwC, Deloitte). In fact, a review of the Big 4 firms' websites indicates that each firm has a sizable worldwide consulting segment, and Deloitte's site refers to itself as the "world's largest management consulting firm." Moreover, each site includes links to publications and individuals to contact regarding "turnaround" services. Clearly, the accounting and finance knowledge of the experts at these firms is respected in the marketplace because it enables them to quickly assess the causes of impending failure and to recommend corrective actions. Thus, boards including accounting experts could be expected to have better-quality financial information and make better-quality decisions about future performance, including strategies for enhancing performance and avoiding calamities such as bankruptcy.

Therefore, based on the foregoing discussion, there is considerable empirical support for the importance of having accounting expertise represented on boards of directors, and the third hypothesis follows:

H3: Banks with directors on the board possessing accounting expertise will be associated with a lower likelihood of failure.

Employing the same logic that supports the first three hypotheses, the fourth research hypothesis is as follows:

H4: Banks with directors on the board possessing bank work experience, bank director experience, and accounting expertise will be associated with a relatively lower likelihood of failure than banks with directors on the board possessing bank work experience, bank director experience, or accounting expertise.

#### Director Tenure

The topic of director tenure and its potential to impact firm performance is an empirical issue that has garnered substantially less attention from scholars than has industry experience or accounting expertise. A partial explanation for the lack of focus on director tenure may be that there is no clear hypothesis for the relationship between director tenure and firm performance. Indeed, there are two competing views on this subject.

The first view is that a director's ability to provide advice and counsel to senior management and to monitor management on behalf of the stockholders is enhanced over time. This expertise hypothesis "suggests that a long-term director engagement is associated with greater experience, commitment, and competence, because it provides a director with important knowledge about the firm and its business environment" (Vafeas, 2003, p. 1044). The logic of this perspective is that directors acquire firm-specific knowledge (e.g., the strengths and weaknesses of senior management) and industry-specific knowledge (with respect to the firm's competitive environment and business strategy) over time that enhances their ability to meet their fiduciary responsibilities to the stockholders.

An argument can be made that the extended periods of economic expansion experienced by the United States in recent decades has lengthened the ideal tenure of directors—especially in the banking industry. Over the last three decades, the United States has enjoyed prolonged periods of economic growth punctuated with relatively brief periods of economic contraction in the early 1980s, the early 1990s, and the early 2000s until the Great Recession took hold in 2008 and led to the latest wave of significant bank failures. Thus, during the last 30 years, it would have been possible for a director to serve on a bank’s board for an extended period of time without ever having to confront a prolonged and pronounced economic downturn and the corresponding effects of nonperforming loans, customer bankruptcies, etc.

Empirical results supporting the expertise-based tenure hypothesis are provided by Bédard et al. (2004). In this study, the researchers examine the relationships among the audit committee’s expertise, independence, and activities and aggressive earnings management using a sample of 300 U.S. companies. They find a negative relationship between the average tenure of outside directors on the audit committee and the likelihood of the firm reporting abnormal accruals (a measure of financial reporting quality). The authors conclude that:

knowledge of the company’s operations and of its executive directors acquired through experience as a member of the board seems to be effective in constraining aggressive earnings management and complacency does not seem to offset the value of firm-specific knowledge as tenure increases. (Bédard et al., 2004, p. 29)

Similarly, Beasley (1996) reports that as the tenure of outside directors increases, the likelihood of financial statement fraud decreases. Hence, these studies suggest that boards composed of directors with longer tenure can be beneficial.

The second view is characterized by the management-friendliness hypothesis (Vafeas, 2003). Under this framework, directors with longer tenures are more likely to befriend executive management over time and less likely to aggressively monitor management on behalf of the stockholders. The logic is that as social and business ties develop between senior executives and outside directors, the directors become less motivated to challenge management and are more of a rubber stamp for company management. Indeed, there is anecdotal evidence that supports this perspective. For instance, in 2001 Enron's board of directors was composed of several directors with 20 or more years of service on the company's board or its predecessor companies' boards (U.S. Senate, 2002). Therefore, it is not surprising that corporate governance advocates such as the National Association of Corporate Directors and the Council of Institutional Investors have proposed limits on director tenure (Sharma & Iselin, 2012).

However, there is limited empirical evidence supporting the management-friendliness hypothesis. Sharma and Iselin (2012) report a significant and positive relationship between the tenure of outside directors on the audit committee and financial misstatements in a post-SOX period. They conclude that longer tenure of outside directors results in "an enduring association with management" that compromises "the effectiveness of their oversight responsibilities" (Sharma & Iselin, 2012, p. 30). Vafeas (2003) also finds evidence that extreme board tenure may be detrimental to the interests of stockholders. Specifically, he notes that longer-tenured directors serving on the

compensation committee are more likely to be associated with significantly higher CEO compensation and that the presence of directors with 20 or more years of service on the board is more likely to be associated with CEO entrenchment. These two studies suggest that boards composed of directors with longer tenure can have adverse economic consequences for a company.

In summary, whether there is a systematic relationship between board tenure and firm performance remains an open question. While there is limited empirical evidence both in support of and against longer tenure, I am not aware of any empirical studies on the association between board tenure and firm performance other than the Mishra and Nielsen (2000) study discussed earlier, which addresses the tenure of independent board members in relation to the tenure of the CEO. Accordingly, the next research hypothesis is stated in the null form:

H5: There is no association between the tenure of directors on a bank's board and the likelihood of bank failure.

Theories about the impact of director tenure can be extended to directors on the board with banking experience and accounting expertise. Directors with banking experience but serving for longer periods on a bank's board can either have accumulated greater knowledge and insight, and thus be more effective in their monitoring and advising roles, or succumb to managerial influences because of the developed friendship ties. The same logic applies to directors with accounting expertise. Therefore, the following two hypotheses are advanced:

H6: There is no association between the tenure of directors with bank work experience on a bank's board and the likelihood of bank failure.



H7: There is no association between the tenure of directors with accounting expertise on a bank's board and the likelihood of bank failure.

#### The Audit Committee

Risk appetite is defined as “the amount of risk, on a broad level, an organization is willing to accept in pursuit of value” (Rittenberg & Martens, 2012, p. 1). The board of directors is ultimately responsible for approving the risk appetite recommended by senior executives and for monitoring and assessing a company's overall risk profile as conditions change (Rittenberg & Martens, 2012). Yet, in a December 2010 report on board risk oversight, a survey of more than 200 board members indicated that 50% of the directors from financial services companies reported that their boards are not executing mature and robust risk oversight processes (COSO, 2010). In fact, in evaluating the overall effectiveness of their boards' risk oversight programs, only 12% of board members rated their processes as highly effective, while 47% responded that their processes either were ineffective or needed some improvement. Perhaps even more telling is the fact that only 13% of the responding directors indicated their boards' monitoring of the risk management process was performed as a “robust and mature activity, with the board satisfied with the supporting process” (COSO, 2010, p. 10). Substantial percentages of the directors responded that the supporting process for monitoring changes in the environment that could impact both corporate strategy and associated risks either was done on an ad hoc basis or was not performed at all. Perhaps in an effort to prod companies into developing and funding risk monitoring activities and as a means of enhancing investors' ability to evaluate whether the board's oversight of a company's risk management activities is appropriate, the final rule issued by the SEC in

2009 and discussed earlier also requires enhanced proxy disclosures regarding the board's role in the risk oversight process (SEC, 2009). One consequence of the financial crisis that is the motivation for this study is an increased focus on the effectiveness of boards' oversight responsibilities with respect to corporate risk management (COSO, 2009).

In reality, however, the full board often delegates its risk oversight role to the audit committee (Deloitte, 2011). In fact, two relatively recent reports have indicated that the audit committee is the primary committee responsible for monitoring corporate risks (64% per Deloitte, 2011) or that the audit committee has extensive involvement in risk oversight across the entire organization (59% per COSO, 2010). Hence, in addition to their responsibilities associated with the financial reporting function, a company's system of internal controls, and dealing with the internal audit function as well as the external auditors, audit committee members at most public companies are also accountable for evaluating and monitoring their companies' risk profiles on an ongoing basis.

In light of criticisms of excessive risk-taking by banks from academic researchers (Peni & Vähämaa, 2012) as well as the Chairman of the Federal Reserve (Bernanke, 2010), it appears that an examination of the audit committees of commercial banks during the latest banking crisis is both warranted and necessary. In their analysis, Cole and White (2012) cite excessive risk in banks' loan portfolios as a major cause of the recent bank failures, suggesting that neither bank boards nor their audit committees appropriately carried out their risk management responsibilities.

Given that most boards delegate risk management oversight to the audit committee and given that the causes of the bank failures during the 2008–2011 timeframe

are not unique and relate directly to the audit committee's responsibility for financial reporting (e.g., determining the adequacy of the bank's provision for loan losses), the fact that so many banks failed to account for the extreme levels of risk in their loan portfolios suggests that audit committee members were lax in their duties, were not appropriately qualified for their audit committee roles, or both. Following the logic of the experience-based human capital theory, it is reasonable to assume that audit committee members with banking experience or accounting expertise would be more qualified in meeting their fiduciary risk oversight responsibilities. This reasoning leads to the following four research hypotheses:

H8: Banks with directors on the audit committee possessing bank work experience will be associated with a lower likelihood of failure.

H9: Banks with directors on the audit committee possessing bank director experience will be associated with a lower likelihood of failure.

H10: Banks with directors on the audit committee possessing accounting expertise will be associated with a lower likelihood of failure.

H11: Banks with directors on the audit committee possessing bank work experience, bank director experience, *and* accounting expertise will be associated with a relatively lower likelihood of failure than banks with directors on the audit committee possessing only bank work experience, bank director experience, *or* accounting expertise.

With respect to directors' tenure on the audit committee, the conflicting theories discussed earlier in relation to board members are relevant with respect to audit committee members. One can argue that industry- and bank-specific knowledge gained

over years of service would translate into more-effective oversight at the audit committee level. However, one could similarly argue that longer tenure causes directors to shirk their duties as suggested by the management-friendliness perspective. Therefore, the final three research hypotheses are stated in the null form:

H12: There is no association between the tenure of directors on a bank's audit committee and the likelihood of bank failure.

H13: There is no association between the tenure of directors with bank work experience on a bank's audit committee and the likelihood of bank failure.

H14: There is no association between the tenure of directors with accounting expertise on a bank's audit committee and the likelihood of bank failure.

## CHAPTER 3

### METHODOLOGY

#### Determination of the Research Sample

The sample for this study includes all U.S. commercial banks that failed during the period 2008–2011. The latest series of bank failures began in 2008. In fact, there were no commercial bank failures in 2005 or 2006 and only three failures in 2007. However, there were 19 commercial bank failures in 2008. The sample period ends in 2011 in order to ensure that nonfailed matching banks did not subsequently fail shortly after the end of the sample period.

The sample selection starts from all nationally chartered banks that are members of the Federal Reserve and supervised by the Office of the Comptroller of the Currency (OCC, 2013), all state-chartered Fed members supervised by the Federal Reserve, and all state-chartered non-Fed member institutions supervised by the FDIC. A bank is considered “failed” if it is listed in the Failed Bank List maintained by the FDIC. Recall that per the FDIC’s website, a bank failure is deemed to have occurred when a bank is closed by a federal or state banking regulatory agency and that a bank is generally closed when it is unable to meet its obligations to depositors and others (<http://www.fdic.gov/consumers/banking/facts/>). From the beginning of 2008 through the end of 2011, the Failed Bank List reflects a total of 413 failures. Included in the total are 59 thrift and savings banks (50 FDIC-supervised state-chartered thrifts and OCC-supervised federally chartered thrifts and 9 state-chartered FDIC-supervised savings banks) that were

excluded to derive the commercial bank sample. (Thrift and savings banks operate under charters that are different from those of commercial banks; the financial information of thrift and savings banks is presently different from that of commercial banks; and thrift and savings banks are operationally different from commercial banks in that they focus exclusively on making home loans and offering savings accounts to customers. For these reasons, thrifts and savings banks were excluded from the sample.) Of the remaining 354 failed commercial banks, 65 were public institutions and 289 were privately owned institutions. The public banks are the focus of this study because the director-related information for the private banks generally is not publicly available. In virtually all the cases of bank failures during the sample period, the banks were part of a one-bank holding company (BHC), and it was the BHC that was the public entity. Public banks and bank holding companies are required to file Form DEF 14A (Definitive Proxy Statement) documents with the SEC. Those proxy statements typically indicate the individuals who are the directors of the BHC and the individuals who are directors of the operating banks. Most of the biographical information on the directors was obtained from these annual proxy statements.

In a total of 15 instances over the three-year study period, the 65 banks referred to here as public institutions actually include banks that were not publicly owned but met the reporting requirements of the SEC. Companies with at least \$10 million in total assets and whose securities are held by at least 500 owners generally must file disclosure reports with the SEC. Although the public banks accounted for only about 22% of the total commercial bank failures during the four-year period under review, the assets of those

banks represented approximately 51% of the total assets of all failed banks, and \$17 billion in lost market capitalization.

Consistent with previous bank failure literature (Espahbodi, 1991; Lane et al., 1986; Meyer & Pifer, 1970), I employ a matched-pairs design because it helps control for extraneous effects and is a more efficient design when the data have to be hand-collected. I identify one matched nonfailed bank for each failed bank in the sample. For reasons outlined below, matching was accomplished based on bank age, size (total assets), and geographic markets. Additionally, the nonfailed bank in each matched-pair must not have failed by September 30, 2012, as confirmed by the Failed Bank List on that date.

As is the case with most new business start-ups, new banks are often financially fragile, and their asset portfolios are less diversified than those of more established banks, leading to a greater variability in earnings. If a bank is able to reach financial maturity, its risk of failure declines sharply (Cole & Curry, 2011; DeYoung, 2003). Thus, matched nonfailed banks were selected first on the basis of bank age. Matching on the basis of asset size was accomplished with as close a match between the failed and nonfailed banks as possible; in all possible situations, banks were deemed to be of similar size if their total assets were within  $\pm 30\%$  in the year of failure. My review of previous bank failure studies indicates that specific criteria for determining a size match between failed and nonfailed banks are not always disclosed. In one instance, the total assets of a bank were “not allowed to exceed twice those of its matching bank” (Lane et al., 1986). Finally, matching on the basis of geographic markets allows for and helps to control for differences in economic conditions in the prevailing markets.<sup>10</sup>

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<sup>10</sup> Four states—California, Florida, Georgia, and Illinois—accounted for 40 of the 65 banks that failed between 2008 and 2011 that were registrants with the SEC at the time of their failure.

Therefore, the sample for this study was 65 failed banks that were registrants with the SEC at the time of their failure from 2008–2011 and 65 nonfailed matching banks. Data were collected on 130 banks for one year before failure (Year 1). Due to missing data on failed banks, the matched-pairs sample dropped to 128 total banks two years before failure (Year 2) and to 116 total banks three years before failure (Year 3).

#### Variables

See Table 1 for a list of the test and control variables, their expected associations with bank failure, their definitions, and the sources of the related data. The information for all the variables was collected for the three-year period leading up to failure of the failed banks; the same information was collected for the matched nonfailed banks for the corresponding periods.



Table 1

*Variable Definitions*

Variable Name	Expected Sign	Variable Description	Data Source
<b>Dependent Variable</b>			
BANK_FAILURE		Indicator variable equal to 1 if bank has failed per FDIC's List of Failed Banks; 0 otherwise	FDIC List of Failed Banks
<b>Test Variables</b>			
BOD_BANKWORK_EXP_ONE	–	Indicator variable equal to 1 if bank board has at least one member who has commercial bank work experience; 0 otherwise	Form DEF 14A
BOD_NONEX_BANKWORK_EXP_ONE	–	Indicator variable equal to 1 if bank board has at least one nonexecutive director who has commercial bank work experience; 0 otherwise	Form DEF 14A
BOD_INDEP_BANKWORK_EXP_ONE	–	Indicator variable equal to 1 if bank board has at least one independent director who has commercial bank work experience; 0 otherwise	Form DEF 14A
BOD_BANKDIR_EXP_ONE	–	Indicator variable equal to 1 if bank board has at least one member who has commercial bank director experience; 0 otherwise	Form DEF 14A
BOD_NONEX_BANKDIR_EXP_ONE	–	Indicator variable equal to 1 if bank board has at least one nonexecutive director who has commercial bank director experience; 0 otherwise	Form DEF 14A
BOD_INDEP_BANKDIR_EXP_ONE	–	Indicator variable equal to 1 if bank board has at least one independent director who has commercial bank director experience; 0 otherwise	Form DEF 14A
BOD_SPECACCTG_ONE	–	Indicator variable equal to 1 if bank board has at least one member who has specific accounting experience as a CPA or in public accounting; 0 otherwise	Form DEF 14A

(continued)

Table 1 (continued)

Variable Name	Expected Sign	Variable Description	Data Source
BOD_NONEX_SPECACCTG_ONE	-	Indicator variable equal to 1 if bank board has at least one nonexecutive director who has specific accounting experience as a CPA or in public accounting; 0 otherwise	Form DEF 14A
BOD_INDEP_SPECACCTG_ONE	-	Indicator variable equal to 1 if bank board has at least one independent director who has specific accounting experience as a CPA or in public accounting; 0 otherwise	Form DEF 14A
BOD_POTACCTG_ONE	-	Indicator variable equal to 1 if bank board has at least one member who has work experience as a chief financial officer, vice president of finance, or controller; 0 otherwise	Form DEF 14A
BOD_NONEX_POTACCTG_ONE	-	Indicator variable equal to 1 if bank board has at least one nonexecutive director who has work experience as a chief financial officer, vice president of finance, or controller; 0 otherwise	Form DEF 14A
BOD_INDEP_POTACCTG_ONE	-	Indicator variable equal to 1 if bank board has at least one independent director who has work experience as a chief financial officer, vice president of finance, or controller; 0 otherwise	Form DEF 14A
AVGBODTEN_DIRECTORS_YRS	+/-	Sum of total board service for all members of the board divided by the size of the board	Form DEF 14A
AVGBODTEN_NONEX_YRS	+/-	Sum of total board service for all nonexecutive directors divided by the total number of nonexecutive directors on the board	Form DEF 14A
AVGBODTEN_INDEP_YRS	+/-	Sum of total board service for all independent directors divided by the total number of independent directors on the board	Form DEF 14A

(continued)

Table 1 (continued)

Variable Name	Expected Sign	Variable Description	Data Source
AC_BANKWORK_EXP_ONE	–	Indicator variable equal to 1 if bank’s audit committee has at least one member who has commercial bank work experience; 0 otherwise	Form DEF 14A
AC_NONEX_BANKWORK_EXP_ONE	–	Indicator variable equal to 1 if bank’s audit committee has at least one nonexecutive director who has commercial bank work experience; 0 otherwise	Form DEF 14A
AC_BANKDIR_EXP_ONE	–	Indicator variable equal to 1 if bank’s audit committee has at least one member who has commercial bank director experience; 0 otherwise	Form DEF 14A
AC_NONEX_BANKDIR_EXP_ONE	–	Indicator variable equal to 1 if bank’s audit committee has at least one nonexecutive director who has commercial bank director experience; 0 otherwise	Form DEF 14A
AC_INDEP_BANKDIR_EXP_ONE	–	Indicator variable equal to 1 if bank’s audit committee has at least one independent director who has commercial bank director experience; 0 otherwise	Form DEF 14A
AC_SPECACCTG_ONE	–	Indicator variable equal to 1 if bank’s audit committee has at least one member who has specific accounting experience as a CPA or in public accounting; 0 otherwise	Form DEF 14A
AC_NONEX_SPECACCTG_ONE	–	Indicator variable equal to 1 if bank’s audit committee has at least one nonexecutive director who has specific accounting experience as a CPA or in public accounting; 0 otherwise	Form DEF 14A
AC_INDEP_SPECACCTG_ONE	–	Indicator variable equal to 1 if bank’s audit committee has at least one independent director who has specific accounting experience as a CPA or in public accounting; 0 otherwise	Form DEF 14A

(continued)

Table 1 (continued)

Variable Name	Expected Sign	Variable Description	Data Source
AC_POTACCTG_ONE	–	Indicator variable equal to 1 if bank’s audit committee has at least one member who has work experience as a chief financial officer, vice president of finance, or controller; 0 otherwise	Form DEF 14A
AC_NONEX_POTACCTG_ONE	–	Indicator variable equal to 1 if bank’s audit committee has at least one nonexecutive director who has work experience as a chief financial officer, vice president of finance, or controller; 0 otherwise	Form DEF 14A
AC_INDEP_POTACCTG_ONE	–	Indicator variable equal to 1 if bank board has at least one member who has commercial bank work experience; 0 otherwise	Form DEF 14A
ACAVGBODTEN_ACDIRECTORS_YRS	+/-	Sum of total board service for all members of the audit committee divided by the size of the audit committee	Form DEF 14A
ACAVGBODTEN_ACINDEPDIR_YRS	+/-	Sum of total board service for all independent directors on the audit committee divided by the total number of independent directors on the audit committee	Form DEF 14A
<b>Control Variables</b>			
BODSIZE	+/-	The natural log of the size of the board of directors	Form DEF 14A
BODIND	+/-	Proportion of the board members who are independent	Form DEF 14A
DUALITY	+/-	Indicator variable equal to 1 if the CEO of the bank is also the board chairman; 0 otherwise	Form DEF 14A
BODMEET	–	The natural log of the number of board meetings annually	Form DEF 14A
ACSIZE	+/-	The natural log of the size of the audit committee	Form DEF 14A
EQUITY	–	Ratio of total equity to total assets	Federal Financial Institutions Examination Council website: <a href="https://cdr.ffiec.gov/public/">https://cdr.ffiec.gov/public/</a>

(continued)

Table 1 (continued)

Variable Name	Expected Sign	Variable Description	Data Source
ADJNPA	+	Ratio of loans past due 90+ days + nonaccruing loans + OREO to total assets	Federal Financial Institutions Examination Council website: <a href="https://cdr.ffiec.gov/public/">https://cdr.ffiec.gov/public/</a>
C&I	+	Ratio of commercial and industrial loans to total assets	Federal Financial Institutions Examination Council website: <a href="https://cdr.ffiec.gov/public/">https://cdr.ffiec.gov/public/</a>
ROA	-	Ratio of net income to total assets	Federal Financial Institutions Examination Council website: <a href="https://cdr.ffiec.gov/public/">https://cdr.ffiec.gov/public/</a>
LOANS	+	Ratio of total loans (net) to total assets	Federal Financial Institutions Examination Council website: <a href="https://cdr.ffiec.gov/public/">https://cdr.ffiec.gov/public/</a>
NONAC_BANKWORK_EXP_ONE	-	Indicator variable equal to 1 if the bank's non-audit committee members have at least one director with commercial bank work experience; 0 otherwise	Form DEF 14A
NONAC_BANKDIR_EXP_ONE	-	Indicator variable equal to 1 if the bank's non-audit committee members have at least one director with commercial bank director experience; 0 otherwise	Form DEF 14A
NONAC_SPECACCTG_ONE	-	Indicator variable equal to 1 if the bank's non-audit committee members have at least one director with specific accounting experience as a CPA or in public accounting; 0 otherwise	Form DEF 14A
NONAC_POTACCTG_ONE	-	Indicator variable equal to 1 if the bank's non-audit committee members have at least one director with work experience as a chief financial officer, vice president of finance, or controller; 0 otherwise	Form DEF 14A
NONAC_AVGBODTEN_NONAC_DIR	+/-	The sum of board service for the non-audit committee members of the board divided by the number of non-audit committee members of the board	Form DEF 14A

(continued)

Table 1 (continued)

Variable Name	Expected Sign	Variable Description	Data Source
NONAC_AVGBODTEN_NONAC_NONEXDIR	+/-	The sum of board service for the non–audit committee nonexecutive directors of the board divided by the number of non–audit committee nonexecutive directors of the board	Form DEF 14A
NONAC_AVGBODTEN_NONAC_INDEPDIR	+/-	The sum of board service for the non–audit committee independent directors of the board divided by the number of non–audit committee independent directors of the board	Form DEF 14A

The dependent variable (*bank failure*) is dichotomous in nature and is based on whether or not a bank is listed in the Failed Bank List maintained by the FDIC. Bank failure is empirically measured as 1 for a bank in this list, and 0 otherwise. There are four independent variables of interest in this study—*commercial bank work experience*, *bank director experience*, *accounting expertise*, and *director tenure*—as each relates to both the board of directors and the audit committee. Because the dependent variable is dichotomous, I estimate a logistic regression for each of the three years prior to a bank's failure, and the empirical model takes the following form, where  $Pr$  is the probability of bank failure and the variables are defined below:

- (1)  $Pr(\text{bank failure})_t = f\{\text{commercial bank work experience} + \text{bank director experience} + \text{accounting expertise} + \text{director tenure} + \text{control variables}\}_{t-1}$
- (2)  $Pr(\text{bank failure})_t = f\{\text{commercial bank work experience} + \text{bank director experience} + \text{accounting expertise} + \text{director tenure} + \text{control variables}\}_{t-2}$
- (3)  $Pr(\text{bank failure})_t = f\{\text{commercial bank work experience} + \text{bank director experience} + \text{accounting expertise} + \text{director tenure} + \text{control variables}\}_{t-3}$

Commercial bank work experience (BOD\_BANKWORK\_EXP\_ONE) and commercial bank director experience (BOD\_BANKDIR\_EXP\_ONE) are represented as dummy variables, with 1 indicating the presence of at least one member of the board of directors with that type of experience and 0 indicating the absence of such experience. This information is assessed based on director biographies in each bank's (or bank holding company's) Form DEF 14A as filed with the SEC in the respective years. A director is deemed to have commercial bank work experience or commercial bank director experience (either previous or contemporaneous experience with respect to director service) if the director's biography includes a reference to previous work or director experience in commercial banking. In instances in which a director's bio

included a reference to a specific financial institution, every effort was made to verify that the institution in question is or was a commercial bank and not a savings bank, a cooperative bank, a credit union, an investment bank, or an industrial bank, because the operational characteristics of these types of financial institutions differ considerably from those of commercial banks. Given that work experience in the commercial banking industry—either as an employee or as a director—should provide a director with a heightened awareness of the types of activities that most often lead to bank failures, I expect a negative association between these variables and bank failure.

A number of studies reported in recent years highlight the fact that the type of accounting expertise represented on a company's audit committee has implications for market perceptions (DeFond et al., 2005), accounting conservatism (Krishnan & Visvanathan, 2008), internal control quality (Krishnan, 2005), financial restatements (Abbott et al., 2004), and accruals quality (Dhaliwal et al., 2010). Therefore, it is reasonable to assume that the nature of the accounting expertise represented on a bank's board may have implications for bank failure. Moreover, given the fact that the audit committee is often accountable for the board's risk management responsibilities, the type of accounting expertise represented on a bank's audit committee may prove to be especially germane.

Naiker and Sharma (2009) investigate how internal control over financial reporting quality is affected by the presence of former partners on the audit committee who are affiliated or unaffiliated with the firm's external auditor and find that both categories of former audit partners are negatively associated with the incidence of internal control deficiencies. Consistent with Naiker and Sharma, I measure accounting



expertise as board members possessing or having possessed a certified public accountant designation or public accounting experience (BOD\_SPECACCTG\_ONE). I also employ an alternative definition of accounting expertise, per Naiker and Sharma, as follows: board members with work experience as a chief financial officer, vice president of finance, or controller (BOD\_POTACCTG\_ONE). As with the bank work experience and director experience variables, each of the accounting expertise variables will be empirically measured as 1 if the board has at least one director with that level of expertise, and 0 otherwise. In light of the professional knowledge and specialized expertise associated with each of the representations of accounting expertise, I would expect each to be negatively associated with bank failure. Following Sharma and Iselin (2012), director tenure will be defined as the average tenure of all board members (AVGBODTEN\_DIR\_YRS). Due to the conflicting theories associated with board tenure discussed earlier, I make no prediction for the association between board tenure and bank failure.

Given that several of my hypotheses address the audit committee members as a result of their risk management responsibilities, each of the test variables associated with the board of directors—BANKWORK\_EXP\_ONE, BANKDIR\_EXP\_ONE, SPECACCTG\_ONE, POTACCTG\_ONE, AVGBODTEN\_DIR\_YRS—will also be investigated in relation to the members of the audit committee, as listed in Table 1. Note that the audit committee-level variables are simply preceded by “AC” to denote that they relate to audit committee members, as opposed to the BOD that denotes board-level variables. In each case, the predicted associations between the audit committee-level variables and bank failure are the same as the predicted associations between the

corresponding board-level variables and bank failure. Since the tenure of members of the audit committee was rarely disclosed, the audit committee tenure variable is based on the directors' tenure on the board instead.

Note also that each hypothesis is tested across three categories of directors: all directors, nonexecutive directors (those directors who are not executives of the bank in question), and independent directors (those directors who are not executives of the bank in question and who do not have business dealings with the bank sufficient to raise questions of independence with respect to the bank). Gray directors, those directors who are also nonexecutives of the bank but who have business relationships with the bank sufficient to prevent them from being considered independent, were excluded from consideration due to the fact that there were too few gray directors to perform analyses on this group of directors.

In order to avoid confounding effects, I control for common board variables employed in previous studies on boards and firm performance, as listed and defined in Table 1 along with their expected directional associations. Note that in several cases I do not form any expectation about a variable's expected association with bank failure due to the inconsistent and inconclusive findings of previous research. I control for size of the board of directors (BODSIZE), the number of board meetings annually (BODMEET), CEO duality (DUALITY), and board independence<sup>11</sup> (BODIND)—defined as the proportion of all board members who are independent. For both BODSIZE and BODMEET, I use the natural log to normalize the data. I expect a negative association

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<sup>11</sup>Independent directors are those whose only relationship with the firm involves their directorship. Independent directors are not current or former employees of the firm or members of their immediate families. Moreover, independent directors must not have any material relationship with the firm arising from their roles as investment bankers, commercial bankers, lawyers, consultants, or officers and directors of the firm's suppliers and customers.

between the number of board meetings per year and bank failure (Vafeas, 1999).

However, I do not form any expectations with respect to the relationship among the size of the board, board independence, and duality, and bank failure as a result of conflicting empirical findings of prior studies.

In addition, when testing audit committee–related variables, I also control for the size of the audit committee (ACSIZE)<sup>12</sup> and form no expectation for the association between audit committee size and bank failure, again due to conflicting results in the literature.<sup>13</sup>

When testing the audit committee–related variables for bank work experience, director experience, accounting expertise, and tenure, I control for the possibility of board-level variables for each of those test variables influencing the results. Specifically, when testing AC\_BANKWORK\_EXP\_ONE, I control for potential effects of bank work experience being represented among non-AC board members (NONAC\_BANKWORK\_EXP\_ONE). When testing AC\_BANKDIR\_EXP\_ONE, I control for the possibility that bank director experience among non-AC board members (NONAC\_BANKDIR\_EXP\_ONE) may affect my results, and so on.

Next, I control for a number of variables with directional predictions that have been shown in previous banking literature to be statistically significant in predicting bank failure. The Uniform Financial Rating System, informally known as the CAMELS ratings system, has been used by federal banking regulators for more than three decades as a means of assessing the health of individual banks. CAMELS is an acronym that

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<sup>12</sup>The number of audit committee meetings was not used as a control due to missing data in too many cases.

<sup>13</sup>One requirement of SOX is that insiders are no longer allowed to serve on the audit committee. Thus, the percentage of insiders serving on the audit committee who are independent of the CEO will not be examined.

represents Capital adequacy, Asset quality, Management, Earnings, Liquidity, and Sensitivity to market risks (Cole & Curry, 2011). Although I collected data on a total of 26 financial ratios used in prior bank failure research, in order to have my models be as parsimonious as possible, I chose five CAMELS-focused ratios that have consistently been reported to be statistically significant ( $p < 0.05$ ) in predicting bank failure in previous studies (see Antoniadou, 2013; Avery & Hanweck, 1984; Berger, Imbierowicz, & Rauch, 2012; Cole & Curry, 2011; Cole & Gunther, 1995, 1998; Cole & White, 2012; DeYoung, 2003; Kerstein & Kozberg, 2013; Lane et al., 1986; Martin, 1977; Mayes & Stremmel, 2013; Nuxoll, 2003; Short, O'Driscoll, & Berger, 1985; Sinkey, 1975; Thomson, 1991; West, 1985; Whalen, 1991; Wheelock & Wilson, 1995, 2000).

Representing the capital adequacy dimension, I control for the ratio of total equity to total assets (EQUITYASSETS). Since this ratio is a measure of the adequacy of a bank's capital base, I expect a negative association between this measure and bank failure. Asset quality is measured by two ratios that have been shown in previous studies to be positively associated with bank failure. Specifically, I control for the ratio of adjusted nonperforming assets to total assets (ADJNPA). Adjusted nonperforming assets include loans past due 90+ days plus nonaccruing loans plus other real estate owned, which the OCC (2013) defines as real estate acquired through any means in full or partial satisfaction of a debt previously contracted; as a result, I expect it to be positively associated with bank failure. Because losses related to loans to commercial and industrial businesses have often been associated with bank failures (Cole & White, 2012), I also control for commercial and industrial loans as a percentage of total assets (C&I) and expect a positive association between this measure and bank failure. Earnings is

represented by the bank's return on assets (ROA), and I expect this measure to be negatively associated with bank failure. Liquidity is assessed via one ratio: the ratio of total loans to total assets (LOANS). I expect this variable to be positively related to bank failure.

Note that I have excluded the management and sensitivity to market risks dimensions included in the CAMELS system. According to the FDIC's *Risk Management Manual of Examination Policies*, the management dimension involves a qualitative assessment of the

capability of the board of directors and management, in their respective roles, to identify, measure, monitor, and control the risks of an institution's activities and to ensure a financial institution's safe, sound, and efficient operation in compliance with applicable laws and regulations. (FDIC, n.d., p. 4.1-14)

Similarly, the sensitivity to market risks dimension includes a qualitative assessment of "the degree to which changes in interest rates, foreign exchange rates, commodity prices, or equity prices can adversely affect a financial institution's earnings or economic capital" (p. 7.1-15). Since both the management and sensitivity to market risks components are qualitative assessments made by the bank examiner during the course of a bank examination, and these data are not publicly available, they are excluded from the study.

The financial information necessary to calculate the CAEL elements and other control variables will be taken from the banks' Reports of Income and Condition (generally referred to as "call reports") as filed with regulatory bodies. That information

is publicly available at the Federal Financial Institutions Examination Council website (<https://cdr.ffiec.gov/public/>).

### Data Analysis

Given that bank failure is a nonmetric, dichotomous (binary) dependent variable, I employ logistic regression analysis to test the study's hypotheses. Both logistic regression and discriminant analysis are appropriate statistical techniques when the dependent variable is categorical and the independent variables are either metric (normally the case for discriminant analysis) or nonmetric (Hair et al., 2010). However, there are instances in which logistic regression is considered superior to discriminant analysis. For instance, two key assumptions underlying discriminant analysis are multivariate normality of the independent variables and equal dispersion and covariance structures for the groups defined by the dependent variable. These assumptions are not always met. While logistic regression is identical to discriminant analysis in terms of the research objectives it can address, logistic regression is not predicated on the multivariate normality or equal variance assumptions and "is much more robust when these assumptions are not met, making its application appropriate in many situations" (Hair et al., 2010, p. 319).

In addition to not requiring the conditions upon which discriminant analysis is based, many researchers prefer logistic regression over discriminant analysis due to its similarities with multiple regression. According to Hair et al. (2010, p. 343), those similarities include "straightforward statistical tests, similar approaches to incorporating metric and nonmetric variables and nonlinear effects, and a wide range of diagnostics."

## CHAPTER 4

### DATA ANALYSIS AND RESULTS

#### Descriptive Statistics

The sample for this study was 65 failed banks that were registrants with the Securities and Exchange Commission (SEC) at the time of their failure from 2008–2011 and 65 nonfailed matching banks. Therefore, data were collected on 130 banks for one year before failure (Year 1), but due to missing data on failed banks the sample dropped to 128 banks in Year 2, and to 116 banks in Year 3. Frequencies and percentages for bank board characteristics by year are presented in Table 2. Approximately 38% of the banks in all three years had at least one director with bank work experience (BOD\_BANKWORK\_EXP\_ONE), 33% had at least one director with bank director experience (BOD\_BANKDIR\_EXP\_ONE), 44% had at least one director with special accounting experience (BOD\_SPECACCTG\_ONE), and 17% had at least one director with potential accounting experience (BOD\_POTACCTG\_ONE). Approximately, 26% of the banks in all three years had at least one nonexecutive director with bank work experience (BOD\_NONEX\_BANKWORK\_EXP\_ONE), 31% had at least one nonexecutive director with bank director experience (BOD\_NONEX\_BANKDIR\_EXP\_ONE), 44% had at least one nonexecutive director with special accounting experience (BOD\_NONEX\_SPECACCTG\_ONE), and 15% had at least one nonexecutive director with potential accounting experience (BOD\_NONEX\_POTACCTG\_ONE). Finally, 25% of banks had at least one independent director with bank work experience (BOD\_INDEP\_

BANKWORK\_EXP\_ONE), 31% had at least one independent director with bank director experience (BOD\_INDEP\_BANKDIR\_EXP\_ONE), 42% had at least one independent director with special accounting experience (BOD\_INDEP\_SPECACCTG\_ONE), and 15% of the banks had at least one independent director with potential accounting experience (BOD\_INDEP\_POTACCTG\_ONE).

Table 2

*Frequencies and Percentages for Bank Board Characteristics*

Characteristic	Year 1 (n = 130)		Year 2 (n = 128)		Year 3 (n = 116)		Total (n = 374)	
	n	%	n	%	n	%	n	%
BOD_BANKWORK_EXP_ONE	49	38	50	39	44	38	143	38
BOD_NONEX_BANKWORK_EXP_ONE	36	28	32	25	28	24	96	26
BOD_INDEP_BANKWORK_EXP_ONE	34	26	31	24	27	23	92	25
BOD_BANKDIR_EXP_ONE	44	34	42	33	39	34	125	33
BOD_NONEX_BANKDIR_EXP_ONE	40	31	39	31	36	31	115	31
BOD_INDEP_BANKDIR_EXP_ONE	40	31	39	31	35	30	114	31
BOD_SPECACCTG_ONE	60	46	57	45	49	42	166	44
BOD_NONEX_SPECACCTG_ONE	60	46	57	45	49	42	166	44
BOD_INDEP_SPECACCTG_ONE	57	44	54	42	47	41	158	42
BOD_POTACCTG_ONE	25	19	22	17	17	15	64	17
BOD_NONEX_POTACCTG_ONE	21	16	20	16	16	14	57	15
BOD_INDEP_POTACCTG_ONE	21	16	20	16	16	14	57	15

Chi-square tests were conducted to assess differences in the percentages of bank board characteristics by failure status. Table 3 presents the percentages of bank board characteristics by failure status. Significance was found for BOD\_BANKWORK\_EXP\_ONE for Year 1, as well as for both BOD\_NONEX\_BANKWORK\_EXP\_ONE and BOD\_INDEP\_BANKWORK\_EXP\_ONE for Years 1–3 ( $p < .05$  for all tests). Results showed that a higher percentage of failed banks had directors with bank work



experience in Year 1. Additionally, there were higher percentages of failed banks with nonexecutive and independent directors with bank work experience in all three years.

Data were also collected on directors serving on banks' audit committees. Frequencies and percentages for bank audit committee characteristics are presented in Table 4. Approximately 14% of banks had at least one audit committee director with bank work experience (AC\_BANKWORK\_EXP\_ONE), 22% had at least one audit committee director with bank director experience (AC\_BANKDIR\_EXP\_ONE), 36% had at least one audit committee director with special accounting experience (AC\_SPEACCTG\_ONE), and 13% had at least one audit committee director with potential accounting experience (AC\_POTACCTG\_ONE). These percentages declined slightly for nonexecutive directors as follows: 13% of banks had at least one nonexecutive director on the audit committee with bank work experience (AC\_NONEX\_BANKWORK\_EXP\_ONE), 21% had at least one nonexecutive director on the audit committee with bank director experience (AC\_NONEX\_BANKWORK\_EXP\_ONE), 36% had at least one nonexecutive director on the audit committee with special accounting experience (AC\_NONEX\_SPEACCTG\_ONE), and 12% had at least one nonexecutive director on the audit committee with potential accounting experience (AC\_NONEX\_POTACCTG\_ONE). The same pattern continued with independent audit committee members as follows: 13% of the banks had at least one independent audit committee director with bank work experience (AC\_INDEP\_BANKWORK\_EXP\_ONE), 21% had at least one independent audit committee member with bank director experience (AC\_INDEP\_BANKDIR\_EXP\_ONE), 35% had at least one independent audit committee member with special accounting experience (AC\_INDEP\_

SPECACCTG\_ONE), and 12% had at least one independent director on the audit committee with potential accounting experience (AC\_INDEP\_POTACCTG\_ONE).

Chi-square tests were also conducted to assess significant differences in bank audit committee characteristics by failure status. Table 5 presents the percentages separated by bank failure status. Significant differences in the chi-squares were found only for AC\_BANKWORK\_EXP\_ONE in Years 1–3 ( $p < .05$  for all). Percentages showed that a significantly higher percentage of failed banks had at least one audit committee director with bank work experience.

Data were also collected on the tenure of all directors, nonexecutive directors, and independent directors both at the board level and also on the audit committee. Means and standard deviations for board and audit committee tenure are presented in Table 6. At the board level, tenure was at its lowest for independent directors in Year 3 ( $M = 9.56$ ,  $SD = 4.61$ ), while it was at its highest for nonexecutive directors in Year 1 ( $M = 10.73$ ,  $SD = 4.65$ ). For the audit committee, tenure was at its lowest for all directors in Year 3 ( $M = 8.83$ ,  $SD = 4.87$ ), while it was at its highest for independent directors in Year 1 ( $M = 9.67$ ,  $SD = 4.94$ ). Table 6 presents descriptive statistics for the control variables.

Table 3

*Percentages for Bank Board Characteristics by Bank Failure Status*

Characteristic	Year 1 (n = 130)		Year 2 (n = 128)		Year 3 (n = 116)		Total (n = 374)	
	Not failed (%)	Failed (%)	Not failed (%)	Failed (%)	Not failed (%)	Failed (%)	Not failed (%)	Failed (%)
BOD_BANKWORK_EXP_ONE	<b>29</b>	<b>46</b>	31	47	29	47	<b>30</b>	<b>47</b>
BOD_NONEX_BANKWORK_EXP_ONE	<b>17</b>	<b>39</b>	<b>16</b>	<b>34</b>	<b>14</b>	<b>35</b>	<b>16</b>	<b>36</b>
BOD_INDEP_BANKWORK_EXP_ONE	<b>14</b>	<b>39</b>	<b>14</b>	<b>34</b>	<b>12</b>	<b>35</b>	<b>13</b>	<b>36</b>
BOD_BANKDIR_EXP_ONE	31	37	31	34	33	35	32	35
BOD_NONEX_BANKDIR_EXP_ONE	29	32	30	31	31	31	30	32
BOD_INDEP_BANKDIR_EXP_ONE	29	32	30	31	29	31	29	32
BOD_SPECACCTG_ONE	43	49	44	45	41	43	43	46
BOD_NONEX_SPECACCTG_ONE	43	49	44	45	41	43	43	46
BOD_INDEP_SPECACCTG_ONE	42	46	42	42	40	41	41	43
BOD_POTACCTG_ONE	22	17	20	14	16	14	19	15
BOD_NONEX_POTACCTG_ONE	19	14	17	14	12	16	16	14
BOD_INDEP_POTACCTG_ONE	19	14	17	14	12	16	16	14

Percentages in bold are significantly different at  $p < .05$  using a chi-square test.

Table 4

*Frequencies and Percentages for Bank Audit Committee Characteristics*

Characteristic	Year 1		Year 2		Year 3		Total	
	(n = 130)		(n = 128)		(n = 116)		(n = 374)	
	n	%	n	%	n	%	n	%
AC_BANKWORK_EXP_ONE	17	13	19	15	15	13	51	14
AC_NONEX_BANKWORK_EXP_ONE	16	12	18	14	15	13	49	13
AC_INDEP_BANKWORK_EXP_ONE	16	12	18	14	15	13	49	13
AC_BANKDIR_EXP_ONE	28	22	29	23	25	22	82	22
AC_NONEX_BANKDIR_EXP_ONE	27	21	26	20	24	21	77	21
AC_INDEP_BANKDIR_EXP_ONE	27	21	26	20	24	21	77	21
AC_SPECACCTG_ONE	48	37	47	37	39	34	134	36
AC_NONEX_SPECACCTG_ONE	48	37	47	37	39	34	134	36
AC_INDEP_SPECACCTG_ONE	47	36	46	36	37	32	130	35
AC_POTACCTG_ONE	17	13	17	13	13	11	47	13
AC_NONEX_POTACCTG_ONE	16	12	16	13	13	11	45	12
AC_INDEP_POTACCTG_ONE	16	12	16	13	13	11	45	12

Table 5

*Percentages for Bank Audit Committee Characteristics by Bank Failure Status*

Characteristic	Year 1 (n = 130)		Year 2 (n = 128)		Year 3 (n = 116)		Total (n = 374)	
	Not Failed (%)	Failed (%)	Not Failed (%)	Failed (%)	Not Failed (%)	Failed (%)	Not Failed (%)	Failed (%)
AC_BANKWORK_EXP_ONE	<b>5</b>	<b>22</b>	<b>5</b>	<b>25</b>	<b>5</b>	<b>21</b>	<b>5</b>	<b>23</b>
AC_NONEX_BANKWORK_EXP_ONE	<b>5</b>	<b>20</b>	<b>5</b>	<b>23</b>	<b>5</b>	<b>21</b>	<b>5</b>	<b>21</b>
AC_INDEP_BANKWORK_EXP_ONE	<b>5</b>	<b>20</b>	<b>5</b>	<b>23</b>	<b>5</b>	<b>21</b>	<b>5</b>	<b>21</b>
AC_BANKDIR_EXP_ONE	20	23	20	25	19	24	20	24
AC_NONEX_BANKDIR_EXP_ONE	20	22	20	20	19	22	20	21
AC_INDEP_BANKDIR_EXP_ONE	20	22	20	20	19	22	20	21
AC_SPECACCTG_ONE	35	39	36	38	33	35	35	37
AC_NONEX_SPECACCTG_ONE	35	39	36	38	33	35	35	37
AC_INDEP_SPECACCTG_ONE	35	37	36	36	33	31	35	35
AC_POTACCTG_ONE	17	9	16	11	14	9	16	10
AC_NONEX_POTACCTG_ONE	17	8	16	9	14	9	<b>16</b>	<b>9</b>
AC_INDEP_POTACCTG_ONE	17	8	16	9	14	9	<b>16</b>	<b>9</b>

Percentages in bold are significantly different between bank failure status at  $p < .05$  using a chi-square test.

Table 6

*Descriptive Statistics for Control Variables Used in Models*

Control variable	Year 1 ( <i>n</i> = 130)		Year 2 ( <i>n</i> = 128)		Year 3 ( <i>n</i> = 116)		Total ( <i>n</i> = 374)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
EQUITY	0.08	0.03	0.10	0.02	0.10	0.03	0.09	0.03
ADJNPA	0.05	0.05	0.02	0.03	0.01	0.02	0.03	0.04
C&I	0.10	0.07	0.10	0.07	0.11	0.09	0.10	0.08
ROA	-0.01	0.03	0.01	0.01	0.01	0.01	0.00	0.02
LOANS	0.78	0.73	0.75	0.10	0.74	0.11	0.76	0.44
BODSIZE.log	2.29	0.28	2.31	0.27	2.31	0.27	2.30	0.27
BODIND	0.76	0.16	0.79	0.13	0.79	0.12	0.78	0.14
DUALITY	0.27	0.45	0.29	0.46	0.30	0.46	0.29	0.45
BODMEET.log	2.34	0.78	2.38	0.55	2.31	0.61	2.35	0.66
ACSIZE	3.90	1.39	4.10	1.13	3.93	1.28	3.98	1.27

Tables 7 and 8 examine differences in board and audit committee tenure as well as control variables used in the model by bank failure status. Significant differences were found in the average board tenure for Years 1 and 2 ( $p < .05$ ), suggesting that banks with directors with longer average tenure were less likely to fail than banks with directors with shorter average tenure in those years. Similarly, significance was also found for nonexecutive directors' tenure for Years 1 and 2, with the average tenure of these directors being significantly higher for those that were in nonfailed banks. Significance was found for independent directors only in Year 1.

The test variables and control variables were examined for multicollinearity using Spearman correlations because the variables are continuous and categorical. The matrix was examined for all three years combined. Correlations with coefficients larger than .80 suggest the presence of multicollinearity (Gujarati, 2003). When examining the correlation matrix, the only correlations that were above the .80 mark were between test variables that would never appear in the same model. No correlation coefficients existed between the control variables and the test variables that were above .80, nor were there correlation coefficients above .80 among the control variables. Results of the correlations are presented in Table 9.

Table 7

*Means for Board and Audit Committee Tenure by Bank Failure Status*

Characteristic	Year 1 ( <i>n</i> = 130)		Year 2 ( <i>n</i> = 128)		Year 3 ( <i>n</i> = 116)		Total ( <i>n</i> = 374)	
	Not failed ( <i>M</i> )	Failed ( <i>M</i> )	Not failed ( <i>M</i> )	Failed ( <i>M</i> )	Not failed ( <i>M</i> )	Failed ( <i>M</i> )	Not failed ( <i>M</i> )	Failed ( <i>M</i> )
AVGBODTEN_DIRECTORS_YRS	<b>11.69</b>	<b>9.65</b>	<b>10.82</b>	<b>9.22</b>	10.36	8.99	<b>10.98</b>	<b>9.30</b>
AVGBODTEN_NONEX_YRS	<b>11.69</b>	<b>9.74</b>	<b>10.79</b>	<b>9.11</b>	10.35	8.79	<b>10.97</b>	<b>9.23</b>
AVGBODTEN_INDEP_YRS	<b>11.56</b>	<b>9.86</b>	10.69	9.18	10.26	8.84	<b>10.86</b>	<b>9.31</b>
ACAVGBODTEN_AC_DIRECTORS_YRS	9.63	9.09	9.87	8.89	9.34	8.32	9.62	8.78
ACAVGBODTEN_ACNONEXDIR_YRS	10.03	9.29	9.96	9.00	9.64	8.36	9.85	8.90
ACAVGBODTEN_ACINDEPDIR_YRS	10.04	9.31	9.96	9.02	9.64	8.37	9.86	8.92

Means in bold are significantly different between bank failure status at  $p < .05$  using an independent sample *t*-test.



Table 8

*Means for Control Variables Used in Models by Bank Failure Status*

Control Variable	Year 1 (n = 130)		Year 2 (n = 128)		Year 3 (n = 116)		Total (n = 374)	
	Not failed (M)	Failed (M)	Not failed (M)	Failed (M)	Not failed (M)	Failed (M)	Not failed (M)	Failed (M)
EQUITY	<b>0.10</b>	<b>0.07</b>	0.10	0.10	0.10	0.10	<b>0.10</b>	<b>0.09</b>
ADJNPA	<b>0.02</b>	<b>0.07</b>	<b>0.01</b>	<b>0.03</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.04</b>
C&I	0.11	0.10	0.10	0.11	0.10	0.11	0.10	0.10
ROA	<b>0.00</b>	<b>-0.02</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>-0.01</b>
LOANS	0.70	0.87	<b>0.72</b>	<b>0.79</b>	<b>0.71</b>	<b>0.78</b>	<b>0.71</b>	<b>0.81</b>
BODSIZE.log	<b>2.34</b>	<b>2.25</b>	2.35	2.26	2.35	2.27	<b>2.35</b>	<b>2.26</b>
BODIND	0.75	0.77	0.80	0.79	0.80	0.79	0.78	0.78
DUALITY*	0.20	0.34	<b>0.20</b>	<b>0.38</b>	<b>0.21</b>	<b>0.40</b>	<b>0.20</b>	<b>0.37</b>
BODMEET.log	<b>2.13</b>	<b>2.56</b>	2.29	2.47	2.24	2.38	<b>2.22</b>	<b>2.47</b>
ACSIZE	3.97	3.83	<b>4.30</b>	<b>3.91</b>	3.95	3.91	4.07	3.88

Means in bold are significantly different between bank failure status at  $p < .05$  using paired sample  $t$ -test.

\*Duality had a chi-square test conducted as it is a dichotomous variable.

Table 9

*Correlation Matrix for Test and Control Variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13
EQUITY (1)	–												
ADJNPA (2)	<b>–.33</b>	–											
C&I (3)	<b>.14</b>	–.04	–										
ROA (4)	<b>.39</b>	<b>–.62</b>	.04	–									
LOANS (5)	.03	–.07	<b>.20</b>	.07	–								
BODSIZE.log (6)	.06	–.02	<b>.12</b>	–.03	–.09	–							
BODIND (7)	.00	–.04	.07	.02	.05	<b>.21</b>	–						
DUALITY (8)	–.09	<b>.12</b>	–.02	–.07	–.03	<b>–.22</b>	<b>–.20</b>	–					
BODMEET.log (9)	<b>–.13</b>	<b>.19</b>	–.01	<b>–.13</b>	.05	–.06	–.02	<b>–.18</b>	–				
AC_BANKWORK_EXP_ONE (10)	.03	<b>.15</b>	–.03	<b>–.14</b>	.00	.04	<b>–.16</b>	<b>.13</b>	–.01	–			
AC_NONEX_BANKWORK_EXP_ONE (11)	.03	<b>.14</b>	–.05	<b>–.14</b>	–.02	.04	<b>–.16</b>	<b>.12</b>	<b>.00</b>	<b>.98</b>	–		
AC_INDEP_BANKWORK_EXP_ONE (12)	.03	<b>.14</b>	–.05	<b>–.14</b>	–.02	.00	<b>–.16</b>	<b>.12</b>	<b>.00</b>	<b>.98</b>	<b>1.00</b>	–	
AC_BANKDIR_EXP_ONE (13)	.10	.00	<b>–.15</b>	.04	.03	.01	–.01	–.02	.01	.07	.01	.01	–
AC_NONEX_BANKDIR_EXP_ONE (14)	–.01	.01	.02	.08	.02	–.03	–.05	.01	<b>.25</b>	.07	.01	.01	.09
AC_INDEP_BANKDIR_EXP_ONE (15)	–.01	.01	.02	.08	.02	–.03	–.05	.01	<b>.25</b>	.07	–.04	–.04	.09
AC_SPECACCTG_ONE (16)	.06	.02	<b>.14</b>	–.04	.03	<b>.20</b>	.05	.02	.05	.06	.05	.05	.02

Coefficients significant at the 5% level are in bold.

(continued)

Table 9 (continued)

	1	2	3	4	5	6	7	8	9	10	11	12	13
AC_NONEX_SPECACCTG_ONE (17)	.06	.02	<b>.14</b>	-.04	.03	<b>.20</b>	.05	.02	.05	.06	.06	.06	.02
AC_INDEP_SPECACCTG_ONE (18)	.07	.01	<b>.12</b>	-.02	.02	<b>.20</b>	.08	.03	.04	.07	.06	.06	.01
AC_POTACCTG_ONE (19)	-.02	.04	.07	.02	-.03	-.04	.07	-.04	.04	.04	.07	.07	.07
AC_NONEXEC_POTACCTG_ONE (20)	-.02	.03	.05	.01	-.04	-.06	.08	-.03	.03	.04	.04	.04	.04
AC_INDEP_POTACCTG_ONE (21)	-.02	.03	.05	.01	-.04	-.06	.08	-.03	.03	.04	.05	.05	.04
AVGBODTEN_DIRECTORS_YRS (22)	-.01	<b>.13</b>	<b>-.14</b>	<b>.15</b>	<b>-.14</b>	<b>-.11</b>	-.08	.04	.04	<b>-.18</b>	.05	.05	<b>-.21</b>
AVGBODTEN_NONEX_YRS (23)	-.05	<b>.13</b>	-.09	<b>.12</b>	-.06	-.05	-.05	.02	<b>.12</b>	<b>-.17</b>	<b>-.16</b>	<b>-.16</b>	<b>-.19</b>
AVGBODTEN_INDEP_YRS (24)	-.08	<b>.14</b>	-.09	<b>.11</b>	-.05	-.06	-.08	.03	<b>.13</b>	<b>-.16</b>	<b>-.15</b>	<b>-.15</b>	<b>-.19</b>
CAVGBODTEN_AC_DIRECTORS_YRS (25)	-.05	<b>.11</b>	-.08	<b>.11</b>	-.06	.01	-.03	.06	<b>.11</b>	<b>-.11</b>	<b>-.14</b>	<b>-.14</b>	<b>-.18</b>
CAVGBODTEN_ACNONEXDIR_YRS (26)	-.05	.10	-.07	<b>.11</b>	-.05	.00	-.05	.05	<b>.10</b>	<b>-.12</b>	-.09	-.09	<b>-.19</b>
CAVGBODTEN_ACINDEPDIR_YRS (27)	-.05	<b>.10</b>	-.07	<b>.11</b>	-.05	.00	-.06	.05	<b>.11</b>	<b>-.12</b>	<b>-.11</b>	<b>-.11</b>	<b>-.19</b>

Coefficients significant at the 5% level are in bold.

(continued)

Table 9 (continued)

	14	15	16	17	18	19	20	21	22	23	24	25	26
AC_INDEP_BANKDIR_EXP_ONE (15)	<b>1.00</b>	–											
AC_SPECACCTG_ONE (16)	.01	.01	–										
AC_NONEX_SPECACCTG_ONE (17)	.01	.01	<b>1.00</b>	–									
AC_INDEP_SPECACCTG_ONE (18)	–.01	–.01	<b>.98</b>	<b>.98</b>	–								
AC_POTACCTG_ONE (19)	.05	.05	.02	.02	.03	–							
AC_NONEXEC_POTACCTG_ONE (20)	.06	.06	.00	.00	.01	<b>.98</b>	–						
AC_INDEP_POTACCTG_ONE (21)	.06	.06	.00	.00	.01	<b>.98</b>	<b>1.00</b>	–					
AVGBODTEN_DIRECTORS_YRS (22)	<b>–.21</b>	<b>–.21</b>	<b>–.13</b>	<b>–.13</b>	<b>–.11</b>	.00	.01	.01	–				
AVGBODTEN_NONEX_YRS (23)	<b>–.19</b>	<b>–.19</b>	<b>–.11</b>	<b>–.11</b>	–.09	.00	.01	.01	<b>.94</b>	–			
AVGBODTEN_INDEP_YRS (24)	<b>–.19</b>	<b>–.19</b>	<b>–.11</b>	<b>–.11</b>	–.10	–.01	.01	.01	<b>.93</b>	<b>.99</b>	–		
ACAVGBODTEN_AC_DIRECTORS_YRS (25)	<b>–.18</b>	<b>–.18</b>	–.07	–.07	–.06	–.01	.00	.00	<b>.82</b>	<b>.84</b>	<b>.83</b>	–	
ACAVGBODTEN_ACNONEXDIR_YRS (26)	<b>–.20</b>	<b>–.20</b>	–.08	–.08	–.07	–.01	–.01	–.01	<b>.84</b>	<b>.87</b>	<b>.87</b>	<b>.97</b>	–
ACAVGBODTEN_ACINDEPDIR_YRS (27)	<b>–.20</b>	<b>–.20</b>	–.08	–.08	–.07	–.01	–.01	–.01	<b>.84</b>	<b>.87</b>	<b>.87</b>	<b>.97</b>	<b>1.00</b>

Coefficients significant at the 5% level are in bold.

To examine Hypotheses 1–4, a series of binary logistic regressions were estimated for each year to assess if bank work experience, bank director experience, the two levels of accounting expertise of interest in this study, and the interactions of these variables were significant in predicting bank failure. EQUITY, ADJNPA, C&I, ROA, LOANS, (log) BODSIZE, BODIND, DUALITY, and (log) BODMEET were used as control variables for the analyses. All omnibus chi-square tests of model coefficients ranged in chi-square values from 32.16 to 107.71 and were significant at the  $p < .01$  level. Cox & Snell  $R^2$  values ranged from .24 to .56 among the models for Hypotheses 1–4, with 71–88% of bank failures being correctly predicted by the models. Table 10 presents the results from the logistic regressions for Hypotheses 1–4.

Control variables in the model were tested first with the test variables present. Positive relationships with bank failure (at the  $p < .05$  level) were found for ADJNPA (Year 1) and LOANS (Years 1–3). Significant, negative relationships with bank failure (at the  $p < .05$  level) were found for EQUITY (Year 1) and ROA (Year 3). For brevity's sake, the control variables were not tabulated in the full models with the test variables present.

Table 10

*Results for Logistic Regression Testing of Hypotheses 1–4*

Variable	Expected Sign	Year 1		Year 2		Year 3	
		B	$\chi^2$	B	$\chi^2$	B	$\chi^2$
H1							
BOD_BANKWORK_EXP_ONE	–	1.28	4.73**	0.63	1.80	0.91	3.34*
BOD_NONEX_BANKWORK_EXP_ONE	–	1.78	7.40***	0.88	2.90*	1.24	4.96**
BOD_INDEP_BANKWORK_EXP_ONE	–	0.60	0.96	0.13	0.07	–0.17	0.12
H2							
BOD_BANKDIR_EXP_ONE	–	0.56	0.87	0.21	0.21	–0.06	0.02
BOD_NONEX_BANKDIR_EXP_ONE	–	0.60	0.96	0.13	0.07	–0.21	0.19
BOD_INDEP_BANKDIR_EXP_ONE	–	0.60	0.96	0.13	0.07	–0.17	0.12
H3							
BOD_SPECACCTG_ONE	–	0.52	0.91	–0.04	0.01	–0.15	0.11
BOD_NONEX_SPECACCTG_ONE	–	0.42	0.59	0.02	0.00	–0.08	0.03
BOD_INDEP_SPECACCTG_ONE	–	0.45	0.66	0.01	0.00	0.01	0.00
BOD_POTACCTG_ONE	–	–0.63	0.71	–0.60	1.00	–0.38	0.38
BOD_NONEX_POTACCTG_ONE	–	–0.86	1.06	–0.66	1.02	0.07	0.01
BOD_INDEP_POTACCTG_ONE	–	–0.87	1.08	–0.66	1.02	0.08	0.01

\*, \*\*, and \*\*\* denote significance at the 0.10, 0.05, and 0.01 levels, respectively. Control variables are not shown.

(continued)

Table 10 (continued)

Variable	Expected Sign	Year 1		Year 2		Year 3	
		<i>B</i>	$\chi^2$	<i>B</i>	$\chi^2$	<i>B</i>	$\chi^2$
H4							
BOD_BANKWORK_EXP_ONE*BOD_BANKDIR_EXP_ONE*BOD_SPECACCTG_ONE	–	–1.72	1.96	–1.37	1.84	0.39	0.15
BOD_NONEX_BANKWORK_EXP_ONE*BOD_NONEX_BANKDIR_EXP_ONE*BOD_NONEX_SPECACCTG_ONE	–	–1.24	1.14	–1.02	1.54	0.13	0.02
BOD_INDEP_BANKWORK_EXP_ONE*BOD_INDEP_BANKDIR_EXP_ONE*BOD_INDEP_SPECACCTG_ONE	–	–1.63	2.13	–1.32	2.59	–0.09	0.01
BOD_BANKWORK_EXP_ONE*BOD_BANKDIR_EXP_ONE*BOD_POTACCTG_ONE	–	–0.55	0.12	0.13	0.01	0.02	0.00
BOD_NONEX_BANKWORK_EXP_ONE*BOD_NONEX_BANKDIR_EXP_ONE*BOD_NONEXEC_POTACCTG_ONE	–	–1.45	0.56	–0.12	0.01	–0.91	0.42
BOD_INDEP_BANKWORK_EXP_ONE*BOD_INDEP_BANKDIR_EXP_ONE*BOD_INDEP_POTACCTG_ONE	–	–0.91	0.22	1.25	0.59	0.07	0.00

\*, \*\*, and \*\*\* denote significance at the 0.10, 0.05, and 0.01 levels, respectively. Control variables are not shown.

Hypothesis 1 examined bank work experience in connection with bank failure. Significance was found at the board level in Year 1 ( $B = 1.28, p < .050$ ) and Year 3 ( $B = 0.91, p < .100$ ), suggesting that banks having at least one director, regardless of whether the director is an executive, nonexecutive, or independent, with previous bank work experience were *more likely* to fail than banks without the presence of such directors on their boards. Positive relationships were also found for nonexecutive directors with bank work experience in Year 1 ( $B = 1.78, p < .010$ ), Year 2 ( $B = 0.88, p < .10$ ), and Year 3 ( $B = 1.24, p < .050$ ), again suggesting that the presence of a nonexecutive director with bank work experience on a bank's board was *more likely* to lead to bank failure than if such directors were not present on the board. No results were significant for independent directors. Although significance was found, given that the results indicated positive relationships instead of negative ones, Hypothesis 1 was not supported.

Hypothesis 2 examined bank failure in the context of boards with bank director experience. However, no significance was found for the relationship between bank director experience and bank failure at the board level, for nonexecutive directors, or for independent directors. However, the signs of the *Betas* were negative, as predicted, for all three categories of directors in Year 3. Thus, Hypothesis 2 was not supported.

Hypothesis 3 examined the presence of the special accounting and potential accounting experience variables and their relationships to bank failure. Again, no significant relationships were found between special accounting experience and bank failure or between potential accounting experience and bank failure. However, it is interesting to note that the signs of the *Betas* were negative, as predicted, in three of nine instances for special accounting experience and negative in seven of nine instances for



potential accounting experience. Nevertheless, since no significant relationships were found, Hypothesis 3 also was not supported.

Hypothesis 4 predicted that the interaction of bank work experience, bank director experience, and special accounting experience or potential accounting experience would be more significant in reducing the likelihood of bank failure than the presence of only one of those variables. However, no significant results were found for the interactions, and thus Hypothesis 4 was not supported. It is worth noting that the signs of the *Betas* were negative, as predicted, in 12 of 18 cases.

To examine Hypotheses 5–7, a series of binary logistic regressions were estimated for each year to assess if average tenure of the board members and the interactions among average board tenure, bank work experience, and the two categories of accounting expertise were related to bank failure. EQUITY, ADJNPA, C&I, ROA, LOANS, (log) BODSIZE, BODIND, DUALITY, and (log) BODMEET were used as control variables for the analyses. All omnibus chi-square tests of model coefficients ranged in chi-square values from 33.38 to 105.44 and were significant at the  $p < .01$  level. Cox & Snell  $R^2$  values ranged from .25 to .56 among the models for Hypotheses 5–7, with 72–90% of bank failures being correctly predicted by the models. Results of the logistic regressions for Hypotheses 5–7 are presented in Table 11.

Table 11

*Results for Logistic Regression Testing of Hypotheses 5–7*

Variable	Expected Sign	Year 1		Year 2		Year 3	
		<i>B</i>	$\chi^2$	<i>B</i>	$\chi^2$	<i>B</i>	$\chi^2$
H5							
AVGBODTEN_DIRECTORS_YRS	+/-	-0.17	6.15**	-0.12	4.61**	-0.06	1.20
AVGBODTEN_NONEX_YRS	+/-	-0.17	5.42**	-0.14	6.07**	-0.08	2.46
AVGBODTEN_INDEP_YRS	+/-	-0.16	5.20**	-0.14	6.08**	-0.08	2.40
H6							
AVGBODTEN_DIRECTORS_YRS*BOD_BANKWORK_EXP_ONE	+/-	-0.44	5.78**	-0.31	5.84**	-0.29	4.73**
AVGBODTEN_NONEX_YRS*BOD_NONEX_BANKWORK_EXP_ONE	+/-	-0.52	5.81**	-0.23	2.77*	-0.31	3.81*
AVGBODTEN_INDEP_YRS*BOD_INDEP_BANKWORK_EXP_ONE	+/-	-0.54	5.33**	-0.15	1.09	-0.29	2.66
H7							
AVGBODTEN_DIRECTORS_YRS*BOD_SPECACCTG_ONE	+/-	0.02	0.02	0.00	0.00	0.06	0.29
AVGBODTEN_NONEX_YRS*BOD_NONEX_SPECACCTG_ONE	+/-	0.00	0.00	0.01	0.01	0.07	0.45
AVGBODTEN_INDEP_YRS*BOD_INDEP_SPECACCTG_ONE	+/-	-0.05	0.11	-0.01	0.01	0.03	0.07
AVGBODTEN_DIRECTORS_YRS*BOD_POTACCTG_ONE	+/-	-0.41	1.66	-0.38	2.23	-0.19	0.87
AVGBODTEN_NONEX_YRS*BOD_NONEXEC_POTACCTG_ONE	+/-	-0.66	3.43*	-0.28	1.55	-0.15	0.58
AVGBODTEN_INDEP_YRS*BOD_INDEP_POTACCTG_ONE	+/-	-0.70	3.90**	-0.29	1.60	-0.16	0.71

\*, \*\*, and \*\*\* denote significance at the 0.10, 0.05, and 0.01 levels, respectively. Control variables are not shown.

Control variables in the model were tested first without the test variables present. Positive relationships with bank failure (at the  $p < .05$  level) were found for ADJNPA (Year 1) and LOANS (Years 1–3). Significant, negative relationships with bank failure (at the  $p < .05$  level) were found for EQUITY (Year 1) and ROA (Year 3). For brevity's sake, the control variables were not tabulated in the full models with the test variables present.

Hypothesis 5 examined the relationship between board tenure and bank failure and predicted there would be no discernible relationship between tenure and failure. Results showed significant, negative relationships between average tenure for the entire board for Year 1 ( $B = -0.17, p < .05$ ) and in Year 2 ( $B = -0.12, p < .05$ ), suggesting that as the average tenure of directors increased, the likelihood of bank failure tended to decrease. Significant, negative relationships were also found for nonexecutive directors for Year 1 ( $B = -0.17, p < .05$ ) and Year 2 ( $B = -0.14, p < .05$ ), as well as for independent directors in Year 1 ( $B = -0.16, p < .10$ ) and Year 2 ( $B = -0.14, p < .05$ ). In short, these results suggest that as board tenure increases, the likelihood of bank failure decreases. Because there were significant associations found, the null form of Hypothesis 5 was rejected.

Hypothesis 6 examined the interaction between director tenure and directors with previous bank work experience and the likelihood of bank failure. Results showed significant negative relationships at the total board level in Year 1 ( $B = -0.44, p < .05$ ), Year 2 ( $B = -0.31, p < .05$ ), and Year 3 ( $B = -0.29, p < .05$ ). This suggests that during all three years, as the tenure of the directors with bank experience increased, the likelihood for failure tended to decrease. Significant, negative relationships were also obtained for

nonexecutive directors with bank work experience in Year 1 ( $B = -0.52, p < .05$ ), Year 2 ( $B = -0.23, p < .10$ ), and Year 3 ( $B = -0.31, p < .10$ ). However, the interaction between tenure of independent directors and bank work experience was negative in all three years but was significant only in Year 1 ( $B = -0.54, p < .05$ ). Because significant relationships were found and Hypothesis 6 was stated in the null form, this hypothesis was rejected.

Hypothesis 7 examined the relationship between tenure of directors with accounting expertise and bank failure. Significance was found only for nonexecutive and independent directors with potential accounting experience and only in Year 1 (for nonexecutive directors:  $B = -0.66, p < .10$ ; for independent directors:  $B = -0.70, p < .05$ ), suggesting that as the tenure of nonexecutive and independent directors with potential accounting experience increased, the likelihood for failure tended to decrease. Again, because significant results were found, the null form of Hypothesis 7 was rejected.

To examine Hypotheses 8–11, a series of binary logistic regressions was estimated for each year to assess whether the presence of banking experience, bank director experience, and the two levels of accounting expertise on the audit committee, as well as the interactions of these variables, was significantly related to bank failure. EQUITY, ADJNPA, C&I, ROA, LOANS, (log) BODSIZE, BODIND, DUALITY, and (log) BODMEET were used as control variables for the analyses. Additionally, ACSIZE, NONAC\_BANKWORK\_EXP\_ONE (H8), NONAC\_BANKDIR\_EXP\_ONE (H9), NONAC\_SPECACCTG\_ONE (H10), and NONAC\_POTACCTG\_ONE (H10) were used as controls where appropriate. The NONAC variables for bank work experience, bank director experience, special accounting expertise, and potential accounting expertise were introduced as additional control variables for each of the audit committee–related

hypotheses to control for the existence, if present, of each of these variables represented at the board level. All omnibus chi-square tests of model coefficients ranged in chi-square values from 32.20 to 103.10 and were significant at the  $p < .01$  level. Cox & Snell  $R^2$  values ranged from .24 to .55 for the models for Hypotheses 8–11, with 71–89% of bank failures being correctly predicted by the models. Results for Hypotheses 8–11 are presented in Table 12.

Control variables in the model were tested first without the test variables present. Positive relationships with bank failure (at the  $p < .05$  level) were found for ADJNPA (Year 1), LOANS (Years 1–3), duality (Years 1–3), and BOODMEET.log (Year 1). A significant, negative relationship with bank failure (at the  $p < .05$  level) was found for EQUITY in Year 1.

Hypothesis 8 examined bank work experience for audit committee members and the corresponding relationship with bank failure. Results showed significant *positive* relationships for audit committee members with bank work experience in Year 1 ( $B = 3.93, p < .01$ ), Year 2 ( $B = 1.57, p < .05$ ), and Year 3 ( $B = 1.46, p < .10$ ). These results suggest that if a bank had an audit committee director with bank work experience, the bank was more likely to fail than otherwise. Positive relationships were also found for nonexecutive directors in Year 1 ( $B = 3.93, p < .01$ ), Year 2 ( $B = 1.48, p < .10$ ), and Year 3 ( $B = 1.46, p < .10$ ), and also for independent directors in Year 1 ( $B = 3.93, p < .01$ ), Year 2 ( $B = 1.48, p < .10$ ), and Year 3 ( $B = 1.46, p < .10$ ). However, since the results showed positive relationships, Hypothesis 8 was not supported.

Table 12

*Results for Logistic Regression Testing of Hypotheses 8–11*

Variable	Expected Sign	Year 1		Year 2		Year 3	
		<i>B</i>	$\chi^2$	<i>B</i>	$\chi^2$	<i>B</i>	$\chi^2$
H8							
AC_BANKWORK_EXP_ONE	–	3.93	9.69***	1.57	4.31**	1.46	3.06*
AC_NONEX_BANKWORK_EXP_ONE	–	3.93	9.69***	1.48	3.71*	1.46	3.06*
AC_INDEP_BANKWORK_EXP_ONE	–	3.93	9.69***	1.48	3.71*	1.46	3.06*
H9							
AC_BANKDIR_EXP_ONE	–	1.66	3.44*	0.61	0.82	0.13	0.05
AC_NONEX_BANKDIR_EXP_ONE	–	1.36	2.53	0.04	0.00	–0.08	0.02
AC_INDEP_BANKDIR_EXP_ONE	–	1.36	2.53	0.04	0.00	–0.08	0.02
H10							
AC_SPECACCTG_ONE	–	0.62	0.62	–0.07	0.47	0.10	0.04
AC_NONEX_SPECACCTG_ONE	–	0.55	0.64	–0.09	0.04	0.10	0.04
AC_INDEP_SPECACCTG_ONE	–	0.53	0.66	–0.16	0.11	0.01	0.00
AC_POTACCTG_ONE	–	–1.77	3.74*	–0.88	1.74	–0.71	0.84
AC_NONEX_POTACCTG_ONE	–	–2.24	5.51**	–1.23	2.92*	–0.71	0.84
AC_INDEP_POTACCTG_ONE	–	–2.25	5.12**	–1.22	2.90*	–0.70	0.83

H11: COULD NOT BE TESTED (see text for details)

\*, \*\*, and \*\*\* denote significance at 0.10, 0.05, and 0.01 levels, respectively. Control variables are not shown.

Hypothesis 9 examined the relationship between bank director experience represented on a bank's audit committee and bank failure. Results showed a positive and statistically significant result at the audit committee level only in Year 1 ( $B = 1.66, p < .10$ ). These results suggest that the likelihood of failure increased if at least one director on the audit committee had bank director experience, but only in Year 1. However, since the results reflected positive relationships, Hypothesis 9 was not supported.

Hypothesis 10 examined the relationship between the two categories of accounting expertise represented on a bank's audit committee and bank failure. For directors with potential accounting expertise, there were significant and negative relationships at the audit committee level in Year 1 ( $B = -1.77, p < .10$ ), for nonexecutive directors on the audit committee in Year 1 ( $B = -2.24, p < .05$ ), and also for independent directors on the audit committee in Year 1 ( $B = -2.25, p < .05$ ). Significant results were also obtained for nonexecutive directors ( $B = -1.23, p < .10$ ) and independent directors ( $B = -1.22, p < .05$ ) in Year 2. Interestingly, with respect to the presence of the SPECACCTG variable on the audit committee, none of those results were significant. In short, these findings suggest that the presence of nonexecutive and independent directors with potential accounting experience on a bank's audit committee indicates a bank was less likely to fail. Because several of the relationships were negative and significant, partial support for Hypothesis 10 was obtained.

Hypothesis 11 proposed that the interaction among audit committee directors with bank work experience, bank director experience, and the two categories of accounting expertise would result in a lower likelihood of failure than the presence of only one of those characteristics on the audit committee. However, when the interactions were added

into the model, the results could not be estimated as there were too few directors possessing all three of the characteristics. The maximum number of audit committee directors possessing all three characteristics was three in Year 2. Consequently, Hypothesis 11 could not be evaluated.

To examine Hypotheses 12–14, a series of binary logistic regressions was estimated for each year to assess whether the average tenure of audit committee members, the average tenure of directors on the audit committee with bank work experience, and the average tenure of directors on the audit committee with either of the two categories of accounting expertise were negatively related to bank failure. EQUITY, ADJNPA, C&I, ROA, LOANS, (log) BODSIZE, BODIND, DUALITY, and (log) BODMEET were used as control variables for the analyses. Additionally, the following additional variables were used as controls where appropriate: ACSIZE; the NONAC variables for BANKWORK\_EXP\_ONE, BANKDIR\_EXP\_ONE, POTACCTG\_ONE, SPECACCTG\_ONE; and the NONAC AVGBODTEN variables for NONAC directors, NONAC nonexecutive directors, and NONAC independent directors. All omnibus chi-square tests of model coefficients ranged in chi-square values from 33.49 to 119.36 and were significant at the  $p < .01$  level. Cox & Snell  $R^2$  values ranged from .25 to .61 among the models for Hypotheses 12–14, with 70–91% of bank failures being correctly predicted by the models. Results for logistic regressions for Hypotheses 12–14 are presented in Table 13.



Table 13

*Results for Logistic Regression Testing of Hypotheses 12–14*

Variable	Expected Sign	Year 1		Year 2		Year 3	
		B	$\chi^2$	B	$\chi^2$	B	$\chi^2$
H12							
ACAVGBODTEN_AC_DIRECTORS_YRS	+/-	-0.13	3.36*	0.11	3.56*	-0.06	1.29
ACAVGBODTEN_ACNONEXDIR_YRS	+/-	-0.12	2.31	-0.12	3.53*	-0.08	2.28
ACAVGBODTEN_ACINDEPDIR_YRS	+/-	-0.12	2.38	-0.12	3.73*	-0.08	2.30
H13							
ACAVGBODTEN_AC_DIRECTORS_YRS*AC_BANKWORK_EXP_ONE	+/-	0.33	6.02**	0.07	0.71	0.08	0.60
ACAVGBODTEN_ACNONEXDIR_YRS*AC_NONEX_BANKWORK_EXP_ONE	+/-	0.40	7.55***	0.05	0.32	0.07	0.54
ACAVGBODTEN_ACINDEPDIR_YRS*AC_INDEP_BANKWORK_EXP_ONE	+/-	0.40	7.49***	0.05	0.31	0.07	0.55
H14							
ACAVGBODTEN_AC_DIRECTORS_YRS*AC_SPECACCTG_ONE	+/-	-0.21	1.53	-0.19	2.77*	-0.08	0.46
ACAVGBODTEN_ACNONEXDIR_YRS*AC_NONEX_SPECACCTG_ONE	+/-	-0.33	3.13*	-0.25	3.77*	-0.07	0.42
ACAVGBODTEN_ACINDEPDIR_YRS *AC_INDEP_SPECACCTG_ONE	+/-	-0.35	3.45*	-0.24	3.55*	-0.06	0.28
ACAVGBODTEN_AC_DIRECTORS_YRS*AC_POTACCTG_ONE	+/-	-0.82	2.59	-0.39	2.16	-0.13	0.33
ACAVGBODTEN_ACNONEXDIR_YRS*AC_NONEXEC_POTACCTG_ONE	+/-	-1.03	3.04*	-0.40	1.91	-0.13	0.33
ACAVGBODTEN_ACINDEP_YRS*AC_INDEP_POTACCTG_ONE	+/-	-1.00	2.78*	-0.38	1.79	-0.12	0.32

\*, \*\*, and \*\*\* denote significance at 0.10, 0.05, and 0.01 levels, respectively. Control variables are not shown.

Control variables in the model were tested first with the test variables present. Positive relationships with bank failure (at the  $p < .05$  level) were found for ADJNPA (Year 1), LOANS (Years 1–3), duality (Year 2), and BODMEET.log (Years 1 and 2). A significant, negative relationship with bank failure (at the  $p < .05$  level) was found only for ROA (Year 3) and NONAC\_AVGBODTEN\_NONACDIR (Year 1).

Hypothesis 12 examined the relationship between audit committee tenure and bank failure. Results showed significant relationships at the audit committee level both in Year 1 ( $B = -0.13, p < .10$ ) and Year 2 ( $B = 0.11, p < .10$ ). Note that the relationship was negative in Year 1 but was positive in Year 2 at the audit committee level. There were also statistically significant negative relationships for nonexecutive and independent directors on the audit committee in Year 2 (nonexecutive directors:  $B = -0.12, p < .10$ ; independent directors:  $B = -0.12, p < .10$ ). Since Hypothesis 12 was stated in the null form, it was rejected.

Hypothesis 13 examined the interaction between the tenure of audit committee members with bank work experience and the corresponding relationship with bank failure. A positive and significant relationship was noted in Year 1 at the audit committee level ( $B = 0.33, p < .05$ ). This finding suggests that as the tenure of audit committee directors with bank work experience increased, the likelihood of failure also tended to increase. There were significant, positive results for both nonexecutive and independent directors in Year 2 (nonexecutive directors:  $B = 0.40, p < .01$ ; independent directors:  $B = 0.40, p < .01$ ). Again, since this hypothesis was stated in its null form, it was rejected.

Hypothesis 14 examined the interaction between the tenure of audit committee members with either of the two levels of accounting expertise and the corresponding

relationship with bank failure. Results of the logistic regressions reflect significant and negative relationships for both nonexecutive directors and independent directors with SPECACCTG experience for each of the two years leading up to failure, and negative relationships for both nonexecutive and independent directors with POTACCTG experience in Year 1. See Table 13 for the full results for Hypothesis 14. Since significant results were found, the null for of Hypothesis 14 is rejected.

#### Supplemental Analysis

In sensitivity tests, I also employed additional financial ratios that have been demonstrated in previous research to be reliable predictors of bank failure. For the capital adequacy dimension, I also controlled for risk-weighted assets to equity; for asset quality, I also controlled for nonperforming assets to total assets; for loan portfolio mix, I also controlled for consumer loans to total assets; and for earnings I also controlled for return on equity. Controlling for these additional variables did not affect my results.

In addition, in other sensitivity tests, I also controlled for whether or not the bank was headquartered in one of the states with the four highest levels of bank failure during the review period. My results were robust when I controlled for the “top 4 failure state” variable. I also controlled for a number of other factors associated with the type of audit firm, the audit firm’s tenure with the bank, the audit fees paid by the bank, nonaudit fees paid by the bank, and stock market listing. An argument could be made that the magnitude of audit fees paid by a bank to its audit firm could be positively associated with audit quality or at least the level of effort extended by the audit firm. When I controlled for the log of the audit fees paid by the bank, that variable was not significant and did not affect my findings. Similarly, whether the audit firm was a local, regional, or

national public accounting firm could also affect the quality of audit services rendered. Nevertheless, when I controlled for the type of audit firm, this control variable was not significant and did not affect my findings. I also controlled for the possibility that the magnitude of nonaudit fees paid by the bank to the audit firm could have affected the professional judgment of the audit firm's personnel. However, the log of nonaudit fees was not significant and did not affect my results. Finally, I also controlled for the possibility that the stock market listing of a bank could affect the degree of scrutiny applied to the audit by the audit firm personnel. When I controlled for stock market listing, however, the result was not significant and my findings were robust.

## CHAPTER 5

### CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

The purpose of this study, believed to be the first of its kind, was to investigate how select characteristics of directors on a bank's board and its audit committee are related to the bank's likelihood of failure. I focused on the following director characteristics: previous commercial bank work experience, service on the board of another commercial bank (either previous or contemporaneous service), two categories of accounting expertise employed in previous research (Naiker & Sharma, 2009), tenure on the board, and the interaction effects of certain of these predictor variables. Each hypothesis was tested at the board and audit committee levels for all directors as well as both nonexecutive directors and independent directors.

Table 14 provides the summary results for the logistic regression testing of each of the hypotheses included in this study. For directional hypotheses, a hypothesis is considered supported if the relevant coefficient is statistically significant and its sign is in the anticipated direction. These are indicated by "S" and the appropriate number of asterisks (\*, \*\*, or \*\*\*) depending on the significance level. For null hypotheses, a hypothesis is considered supported only if statistically significant results are not obtained—regardless of the sign. For a null hypothesis that has a statistically significant test result, the initials "NS" indicate not supported followed by the obtained sign of the relevant coefficient (+ or -) and asterisks indicating level of significance.

Table 14

*Summary Results of Logistic Regression Testing of Hypotheses 1–14*

Variable	Expected Sign	Year 1	Year 2	Year 3
H1				
BOD_BANKWORK_EXP_ONE	–	NS**	NS	NS*
BOD_NONEX_BANKWORK_EXP_ONE	–	NS***	NS*	NS**
BOD_INDEP_BANKWORK_EXP_ONE	–	NS	NS	NS
H2				
BOD_BANKDIR_EXP_ONE	–	NS	NS	NS
BOD_NONEX_BANKDIR_EXP_ONE	–	NS	NS	NS
BOD_INDEP_BANKDIR_EXP_ONE	–	NS	NS	NS
H3				
BOD_SPECACCTG_ONE	–	NS	NS	NS
BOD_NONEX_SPECACCTG_ONE	–	NS	NS	NS
BOD_INDEP_SPECACCTG_ONE	–	NS	NS	NS
BOD_POTACCTG_ONE	–	NS	NS	NS
BOD_NONEX_POTACCTG_ONE	–	NS	NS	NS
BOD_INDEP_POTACCTG_ONE	–	NS	NS	NS
H4				
BOD_BANKWORK_EXP_ONE*BOD_BANKDIR_EXP_ONE*BOD_SPECACCTG_ONE	–	NS	NS	NS
BOD_NONEX_BANKWORK_EXP_ONE*BOD_NONEX_BANKDIR_EXP_ONE*BOD_NONEX_SPECACCTG_ONE	–	NS	NS	NS
BOD_INDEP_BANKWORK_EXP_ONE*BOD_INDEP_BANKDIR_EXP_ONE*BOD_INDEP_SPECACCTG_ONE	–	NS	NS	NS
BOD_BANKWORK_EXP_ONE*BOD_BANKDIR_EXP_ONE*BOD_POTACCTG_ONE	–	NS	NS	NS
BOD_NONEX_BANKWORK_EXP_ONE*BOD_NONEX_BANKDIR_EXP_ONE*BOD_NONEX_POTACCTG_ONE	–	NS	NS	NS
BOD_INDEP_BANKWORK_EXP_ONE*BOD_INDEP_BANKDIR_EXP_ONE*BOD_INDEP_POTACCTG_ONE	–	NS	NS	NS

S = Supported; NS = Not Supported

(continued)

\*, \*\*, and \*\*\* denote significance at 0.10, 0.05, and 0.01 levels, respectively.

Table 14 (continued)

Variable	Expected Sign	Year 1	Year 2	Year 3
<b>H5</b>				
AVGBODTEN_DIRECTORS_YRS	+/-	NS, -**	NS, -**	S
AVGBODTEN_NONEX_YRS	+/-	NS, -**	NS, -**	S
AVGBODTEN_INDEP_YRS	+/-	NS, -**	NS, -**	S
<b>H6</b>				
AVGBODTEN_DIRECTORS_YRS*BOD_BANKWORK_EXP_ONE	+/-	NS, -**	NS, -**	NS, -**
AVGBODTEN_NONEX_YRS*BOD_NONEX_BANKWORK_EXP_ONE	+/-	NS, -**	NS, -*	NS, -*
AVGBODTEN_INDEP_YRS*BOD_INDEP_BANKWORK_EXP_ONE	+/-	NS, -**	S	S
<b>H7</b>				
AVGBODTEN_DIRECTORS_YRS*BOD_SPECACCTG_ONE	+/-	S	S	S
AVGBODTEN_NONEX_YRS*BOD_NONEX_SPECACCTG_ONE	+/-	S	S	S
AVGBODTEN_INDEP_YRS*BOD_INDEP_SPECACCTG_ONE	+/-	S	S	S
AVGBODTEN_DIRECTORS_YRS*BOD_POTACCTG_ONE	+/-	S	S	S
AVGBODTEN_NONEX_YRS*BOD_NONEXEC_POTACCTG_ONE	+/-	NS, -*	S	S
AVGBODTEN_INDEP_YRS*BOD_INDEP_POTACCTG_ONE	+/-	NS, -**	S	S
<b>H8</b>				
AC_BANKWORK_EXP_ONE	-	NS***	NS**	NS*
AC_NONEX_BANKWORK_EXP_ONE	-	NS***	NS*	NS*
AC_INDEP_BANKWORK_EXP_ONE	-	NS***	NS*	NS*
<b>H9</b>				
AC_BANKDIR_EXP_ONE	-	NS*	NS	NS
AC_NONEX_BANKDIR_EXP_ONE	-	NS	NS	NS
AC_INDEP_BANKDIR_EXP_ONE	-	NS	NS	NS

S = Supported; NS = Not Supported

\*, \*\*, and \*\*\* denote significance at 0.10, 0.05, and 0.01 levels, respectively.

(continued)

Table 14 (continued)

Variable	Expected Sign	Year 1	Year 2	Year 3
<b>H10</b>				
AC_SPECACCTG_ONE	-	NS	NS	NS
AC_NONEX_SPECACCTG_ONE	-	NS	NS	NS
AC_INDEP_SPECACCTG_ONE	-	NS	NS	NS
AC_POTACCTG_ONE	-	S*	NS	NS
AC_NONEX_POTACCTG_ONE	-	S**	NS*	NS
AC_INDEP_POTACCTG_ONE	-	S**	NS*	NS
<b>H11 – COULD NOT BE TESTED (see text for details)</b>				
<b>H12</b>				
ACAVGBODTEN_AC_DIRECTORS_YRS	+/-	NS, -*	NS, +*	S
ACAVGBODTEN_ACNONEXDIR_YRS	+/-	S	NS, -*	S
ACAVGBODTEN_ACINDEPDIR_YRS	+/-	S	NS, -*	S
<b>H13</b>				
ACAVGBODTEN_AC_DIRECTORS_YRS*AC_BANKWORK_EXP_ONE	+/-	NS, +**	S	S
ACAVGBODTEN_ACNONEXDIR_YRS*AC_NONEX_BANKWORK_EXP_ONE	+/-	NS, +***	S	S
ACAVGBODTEN_ACINDEPDIR_YRS*AC_INDEP_BANKWORK_EXP_ONE	+/-	NS, +***	S	S
<b>H14</b>				
ACAVGBODTEN_AC_DIRECTORS_YRS*AC_SPECACCTG_ONE	+/-	S	NS, -*	S
ACAVGBODTEN_ACNONEXDIR_YRS*AC_NONEX_SPECACCTG_ONE	+/-	NS, -*	NS, -*	S
ACAVGBODTEN_ACINDEPDIR_YRS*AC_INDEP_SPECACCTG_ONE	+/-	NS, -*	NS, -*	S
ACAVGBODTEN_AC_DIRECTORS_YRS*AC_POTACCTG_ONE	+/-	S	S	S
ACAVGBODTEN_ACNONEXDIR_YRS*AC_NONEXEC_POTACCTG_ONE	+/-	NS, -*	S	S
ACAVGBODTEN_ACINDEP_YRS*AC_INDEP_POTACCTG_ONE	+/-	NS, -*	S	S

S = Supported; NS = Not Supported

\*, \*\*, and \*\*\* denote significance at 0.10, 0.05, and 0.01 levels, respectively.



Contrary to expectations, at the board level neither bank work experience, bank director experience, nor either type of accounting expertise was effective in preventing bank failure (Hypotheses 1–4). In fact, with respect to bank work experience, the signs were *positive* and statistically significant in five instances, and negative—as expected—in only one instance and never statistically significant. For bank director experience, the signs were surprisingly positive in six of nine instances and never statistically significant. Although significant results were not obtained with respect to either special or potential accounting experience in any period, the signs were as expected in 10 of 18 instances. With respect to the interaction effects of bank work experience, bank director experience, and the two categories of accounting expertise, statistically significant results were not observed for any period, although the signs were as expected in 12 of 18 cases.

All hypotheses that involve average board tenure were proposed in the null form due to conflicting theories with respect to the anticipated benefits associated with tenure. Hypothesis 5 predicted that there would be no association between the tenure of directors on a bank's board and the likelihood of bank failure. The results reflect negative signs in all nine instances, and the results were statistically significant in six of those cases. Thus, these findings provide support for the idea that directors with longer tenure are associated with a lower likelihood of bank failure.

Despite the fact that bank work experience was not statistically significant in preventing bank failure (see Hypothesis 1), when bank work experience was allowed to interact with average board tenure (Hypothesis 6), an inverse relationship between the interaction term and bank failure was noted in all nine possible cases, and the results were

statistically significant in seven of nine cases. These findings suggest that bank work experience is beneficial in preventing bank failure only when the directors with bank work experience have served on the bank's board for relatively longer periods.

I also examine the interaction effects of average board tenure and the two categories of accounting expertise employed in this study and their impact on bank failure. The results with respect to SPECACCTG and board tenure were negative in only two of nine instances and never statistically significant. However, for the interaction of POTACCTG and board tenure, the signs were negative in all nine instances and statistically significant only for nonexecutive and independent directors and only in the year before failure. These findings indicate that only when nonexecutive and independent directors' potential accounting experience is combined with longer director tenure do the positive benefits accrue to the bank on whose boards they sit.

This study also investigated the relationships between bank work experience, bank director experience, and the two categories of accounting expertise possessed by members of the banks' audit committee and bank failure. For bank work experience, the signs were unexpectedly positive and statistically significant in all nine instances. For bank director experience, the signs were similarly positive in seven of nine instances but statistically significant in only one period—at the audit committee level one year prior to failure. For the audit committee–related POTACCTG variable, the signs were in the anticipated direction in all nine instances and statistically significant in five of nine cases. For SPECACCTG represented on the audit committee, the signs were unexpectedly positive in six of nine cases but never statistically significant. These results suggest that having audit committee directors with work experience as a chief financial officer, vice

president of finance, or controller is more effective in preventing bank failure than having audit committee members with the CPA designation or experience in public accounting.

With respect to the association between average tenure of directors on the audit committee and bank failure, the signs were negative in eight of nine instances. A statistically significant inverse relationship between tenure and bank failure was noted in three of nine cases; a statistically significant positive relationship between tenure and bank failure was noted in one instance. These results provide limited support for the expertise hypothesis, suggesting that directors do indeed gain bank-specific and industry-specific knowledge over time that enables them to enhance their ability to meet their fiduciary responsibilities on behalf of the stockholders.

When average tenure of audit committee members was allowed to interact with bank work experience at the audit committee level, the interaction term was positively associated with bank failure in all nine cases and was statistically significant in three of those cases. These results provide additional support for the notion that directors possessing bank work experience on bank boards are not an effective deterrent to bank failure.

Finally, the power of director tenure is again apparent in the results obtained for the interactive effects of average tenure and the two types of accounting expertise possessed by audit committee members and their corresponding effects on bank failure. The signs were negative in all 18 cases and reached significance in 7 of 18 instances. While the results related to SPECACCTG and POTACCTG and bank failure reflected negative signs in 12 of 18 instances and statistical significance in 5 of 18 cases (see Hypothesis 10), once average tenure was allowed to interact with the two types of

accounting expertise, negative signs were obtained in all 18 cases and statistical significance was noted in 7 of 18 cases. These results provide additional support for the notion that directors with longer tenure are associated with a reduced likelihood of bank failure.

### Discussion

A central premise of this study was that the human capital that directors bring to oversight responsibilities and corporate strategy roles should be inversely related to bank failure. The specific elements of human capital of interest were previous commercial bank work experience, director experience, and two categories of accounting expertise employed in previous academic research. In general, my findings do not provide support for many of the hypotheses and, in many cases, the actual signs were in the unpredicted direction. There are a number of potential explanations for these findings.

First, although I could determine from their biographies included in the banks' Form DEF 14A statements whether or not a director had previous bank work experience or previous or contemporaneous bank director experience, in most cases it was not possible to capture the duration of the bank employment relationship or the bank directorship. It is possible that the directors were not employed or did not serve as directors for a sufficiently long enough period to begin to reap the human capital benefits of those experiences. It may be that banks, in their efforts to put their directors in the best possible light for stockholders, could have emphasized in director bios what senior management deemed to be desirable relevant industry experience even when such experience was not long in duration. Future research into these issues could address the

duration of such relationships in order to determine if there is a minimum level of service necessary for the banks to realize the benefits related to these director experiences.

Second, I did not attempt to assess the quality of the experience of the directors who possessed bank work experience and/or bank directorships. Although many of the director bios included the names of the banks that had employed the directors or on whose boards their directors had served, I made no attempt to determine whether those banks survived or failed during the latest wave of bank failures. Experience, either as an employee or as a director, with a poorly managed bank with a risky business strategy clearly would not be as beneficial to the director as experience with a well-run bank with a properly diversified loan portfolio and reasonable business strategy.

Third, a recent study by Almandoz and Tilcsik (2013) provides intriguing insights into the human capital dimension of bank directors—especially those with bank work experience. In a study of 457 commercial and savings banks established between 1996 and 2000, the authors hypothesize and find support for the idea that directors with experience working in the banking industry as well as real estate professionals may indeed prove to be liabilities instead of assets when their banks are involved in “risk-fraught activities.” Specifically, the study uses a bank’s asset growth rate and a relatively high proportion of real estate loans in the bank’s loan portfolio as proxies for risk-fraught activities and finds that banks with higher proportions of domain experts (experience as bankers or as real estate professionals) were more likely to fail by the end of 2012 than were banks with lower proportions of these experts on their boards. The authors theorize that their findings are attributable to expert overconfidence and cognitive entrenchment: “One well-documented and potentially problematic tendency of experts is overconfidence

in the accuracy of their professional judgment and predictions, which may in turn foster undue risk-taking or imprudent organizational decisions” (p. 6). Dane (2010) defines cognitive entrenchment as a high degree of stability in a person’s domain schemas. While such stability may be desirable in many cases, it may also have undesirable consequences as domain expertise grows: “As one acquires domain expertise, one loses flexibility with regard to problem solving, adaptation, and creative idea generation” (Dane, 2010, p. 582). Thus, domain experts may become wedded to their initial decisions or evaluations and ignore new information that suggests their initial judgments were inaccurate. Clearly, the findings of the Almandoz and Tilcsik study help explain the counterintuitive results of this study.

Another ironic finding of the current study is that directors with experience as a chief financial officer, vice president of finance, or controller (POTACCTG) were more beneficial to the banks on whose boards they sat than were directors who were CPAs or who had worked in public accounting (SPECACCTG). It may be that the directors possessing the SPECACCTG background were more focused on the accounting-related aspects of their roles as directors (overseeing the relationship with the external auditors, working with the internal audit function, ensuring that the bank’s tax positions were reasonable, etc.) than they were with assessing the adequacy of the bank’s loan portfolio diversification policies, providing oversight with respect to market expansion and bank acquisitions, etc. An argument could be made that assessing the big picture for the bank is more in the job requirements of chief financial officers and vice presidents of finance than is typically expected of CPAs and those employed in public accounting. Future research should be directed at trying to ferret out the circumstances under which and the

reasons why directors with a POTACCTG background appear to contribute more to their banks' survivability than do directors with a SPECACCTG background.

This study's results with respect to the tenure of directors on the board as well as those on the audit committee generally provide support for the expertise hypothesis—the idea that directors' ability to meet their oversight responsibilities and to set reasonable corporate policies and objectives is enhanced as the directors gain industry-specific knowledge during their tenure as directors. Therefore, banking regulators and others with an interest in the corporate governance of commercial banks would be well advised not to limit the tenure of bank directors, as the human capital of these directors improves over time and strengthens the survivability of their banks. However, future research is needed to determine if there is a point at which longer board service no longer benefits the bank. Future research could also address whether the findings with respect to tenure are applicable across all sizes of banks or whether the findings are relevant only to banks of a certain size.

#### Limitations

As is the case with any research, there are limitations associated with this study. One such shortcoming is that the current research is a study of association and not causation. Second, even though I tried to design the research so as to control for a large number of variables, the possibility remains that omitted correlated variables could explain the results. A third limitation typical of studies relying on biographical information is that the results are dependent on the accuracy and completeness of the director information provided by firms in their DEF 14A filings with the SEC. Also, while this study's focus on the commercial banking industry in the United States

eliminates the need to control for interindustry differences, by concentrating on a single industry the study's results may not be generalizable to other businesses.

The matched-pairs design of this study results in additional limitations. Although I attempted to find a suitable matching nonfailed bank for each failed bank in the sample based on the matching criteria discussed earlier, a close match on each of the criteria was not possible in every instance. It is also possible that in instances in which there are multiple potential matching banks, the selection of one bank over another could have affected my results. Another limitation is that the current study focuses on SEC registrants and, therefore, the results may not be generalizable to private, nonlisted banks. Moreover, as a result of the financial crisis, the sample period (2008–2011) was characterized by relatively rapid deterioration in economic conditions in much of the country; thus, the study's results may not be generalizable to periods of less-challenging economic circumstances. Finally, given that boards and their subcommittees conduct their activities in private, it is impossible to ascertain the level of influence of individual directors on their boards' deliberative processes. For instance, it is possible that directors (on the board or the audit committee) possessing banking experience and/or accounting expertise may not have the appropriate interpersonal skills to enable them to adequately influence the other board members—thereby negating the positive effects of the directors' experience and expertise. It is also possible that some boards—especially in smaller banks—are tightly controlled by one or more dominant directors who have the power to ignore the advice and guidance provided by other directors. These limitations open up several opportunities for future research.



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