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# Inside the Boardroom: Evidence from the Board Structure and Meeting Minutes of Community Banks

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## Inside the Boardroom:

### Evidence from the Board Structure and Meeting Minutes of Community Banks

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#### *ABSTRACT*

Community banks are critical for local economies, yet research on their corporate governance has been scarce due to limited data availability. We explore a unique, proprietary dataset of board membership and meeting minutes of failed community banks to present several stylized facts regarding their board structure and meetings. Community bank boards have fewer members and a higher percentage of insiders than larger publicly traded banks, and experience little turnover during normal times. Their meetings are held monthly and span about two hours. During times of distress, community bank boards convene less often in regularly scheduled meetings in lieu of impromptu meetings, experience higher turnover, particularly among their independent directors, and their meeting tone switches from neutral to significantly negative. Board attention during distressed times shifts towards discussion of capital and examination oversight, and away from lending activities and meeting formalities.

*JEL CLASSIFICATION:* G21, G34, C81.

*KEYWORDS:* corporate governance, board of directors, banking, machine learning, natural language processing.

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## 1. INTRODUCTION

Community banks are the cornerstone of local economies. Their relationship lending model provides an advantage in provisioning financial services to clients when information is costly and difficult to collect. Recently, community banks played an important role in channelling funds to the real economy during the Coronavirus pandemic by allocating nearly forty percent of the Payroll Protection Program funding to local businesses (George 2020).

Like all firms, community banks face agency-related conflicts between managers and investors (Jensen and Meckling 1976). Management possesses private information about the firm and may be more willing than investors to take on risks. Investors typically rely on the information provided to them by managers and may exhibit more risk-aversion because their own capital is on the line (Jensen and Murphy 1990). An effective board of directors can help align the interests of both groups (Yermack 1996).

Proper governance of community banks requires assessing and monitoring the bank's risk. Inadequate oversight can lead to financial distress and, ultimately, bank failure. This is especially concerning because the failure of community banks can result in substantial losses to deposit insurance funds and disrupt local banking relationships, thereby impeding economic growth. Despite their significance, research on community bank governance has been scarce largely due to limited data availability.

This paper presents a comprehensive analysis of community bank boards of directors using detailed data on board structure and meeting minutes. First, we provide a comprehensive description of the characteristics of the boards at community banks and how they differ from the boards at publicly traded banks. Second, using real time data from minutes and tools from natural language processing we provide a rich analysis of how the structure of the boards and the attendance of the boards shift as these banks approach failure.

Unlike larger publicly traded banks, community banks operate within distinct contexts—they are often closely held and deeply rooted in local communities. Consequently, we anticipate that governance practices at community banks differ significantly from those of their larger, often publicly traded, counterparts. While research on publicly traded banks has relied on indirect proxies such as board size and the proportion of independent directors to gauge

governance effectiveness, we directly study the workings of community bank boards using detailed data on board membership and meetings.

We divide our analysis by describing the structure of the boards and meeting minutes during normal and distressed times. During normal times, community bank boards typically consist of about eight directors, and while largely independent, contain a high degree of insiders. This composition contrasts with their publicly traded bank counterparts, which are often larger and manage more assets that potentially necessitate a larger board and higher degree of independence to mitigate agency conflicts among investors and managers. This finding is also consistent with community bank boards requiring insiders that understand the core functions of the bank and their services to local communities. We also find that turnover during normal times is rare, with departures occurring only once every twenty years on average. When convening, boards typically engage in discussions spanning approximately two hours, with a focus on lending activities and meeting formalities, and exhibit generally neutral sentiment.

In contrast, during distressed times, which we characterize by the last three years of the bank's life, we find significant shifts in the structure of the boards and meeting dynamics. Turnover becomes more frequent, with one director, generally independent, departing every two years on average. We find that regularly scheduled meetings occur less frequently, and the number of special (impromptu) meetings rises. The sentiment overall for board meetings turns negative, reflecting the directors' heightened concerns about the bank's viability and prospects. With respect to the areas on which the boards focus, we observe a sharp increase in discussion of capital and examination oversight. The surge in capital discussions rises precipitously in the two years before failure, while attention to examination oversight gradually increases around five years before failure. Concurrently, we find a notable decrease in attention to lending activities and a reduced usage of words related to meeting formalities (e.g. Robert's Rules of Order). This shift reflects the boards' prioritization of urgent concerns related to maintaining the banks' solvency and addressing regulatory pressures, foregoing meeting formalities and attention to their lending opportunities.

Our study is the first to provide stylized facts on governance dynamics at community banks. By analyzing the inner workings of a community banks' boards, we contribute to a deeper understanding of the unique governance challenges faced by community banks and their impact on financial stability and local economies.

This paper contributes to three key areas of literature. First, we address the gap in understanding community bank governance by providing detailed insights into board structure and meetings. While community banks are vital for local economies (Bernanke 2013), research on their governance has been limited. Existing literature often focuses on boards at nonfinancial firms, and finds that smaller, more independent boards tend to enhance performance (Hermalin and Weisbach 2003; Yermack 1996; Jensen 1993). However, this relationship differs for banks due to their operational complexity (Adams and Mehran 2012; Pathan and Faff 2013; Berger et al. 2014). Our study overcomes data limitations by analyzing community bank board characteristics, attendance, and meeting content, revealing that these boards are typically smaller, include fewer independent directors, and actively involved in bank operations.

Secondly, we offer a comprehensive examination of how corporate governance evolves as banks approach failure. By studying failed banks, we contribute to the literature studying the role that boards play in bank risk-taking and failures (Laeven and Levine 2009; Berger et al. 2016). We observe increased board turnover in the years preceding failure, consistent with findings linking turnover to poor performance (Daily and Dalton 1995; Hermalin and Weisbach 1998). Additionally, we explore where boards place their attention near failure, finding that community bank boards, with a relatively low number of independent directors, focus on capital and regulatory discussions in the last years of the bank's life, aligning with recent research linking lack of board independence with advisory roles (Hwang and Kim 2008; Cohen et al. 2012).

Lastly, we contribute to the emerging literature employing machine learning and natural language processing techniques in finance. Previous research has predominantly focused on sentiment analysis in media or social media contexts (Shapiro et al. 2022; Angelico et al. 2022), monetary policy and macroeconomics (Cajner et al. 2024; Gorodnichenko et al. 2023; Shapiro and Wilson 2022; Ehrmann and Wabitsch 2022), and risks relayed via publicly traded bank conference calls (Hanley and Hobert 2019; Soto 2021). By leveraging FinBERT, an early version of the transformer model employed in sophisticated models like ChatGPT (Hansen and Kaznnik 2023), we contribute to this literature by incorporating modern techniques into sentiment analysis and showcase how it can be used to analyze corporate governance at community bank boards.

The paper is structured as follows: Section II outlines the data used in our analysis. Section III provides a summary of our methodology for measuring attention, while Section IV compares

community bank board structure and meetings during normal times versus times of distress. Finally, Section V concludes.

## 2. DATA

We use meeting minutes of 32 failed banks from data collected by the FDIC shortly after the banks' failures. The data include unstructured data and file repositories from the failed banks. Our data collection process began with an initial screening for files that contain the term "minutes", yielding approximately half a million candidate documents across the banks. As most of the appearances of the word "minutes" are false positives—i.e. not an actual board minute document but rather a file that contains the word—we clean this data to isolate relevant documents. Due to variations in file structure and content, we employed machine learning techniques to classify the candidate documents as board of director minutes or otherwise, using a training dataset of 33,000 manually labelled documents from the set of documents containing the word "minutes". We then deployed our classification model, which consists of an ensemble model built from seven distinct machine learning methods, to further refine our set of candidate board of director meeting minutes. We manually verified the flagged documents to ensure they are board meeting minutes and, to ensure completeness, we restrict our sample to banks for which we identify at least six board meetings per year.<sup>1</sup> The final dataset consists of 32 banks whose failures span from 2009 to 2013. We conduct analysis on 3,822 meeting minutes.

Before we analyze the content of the board meeting minutes, we look at the characteristics of the board members. We obtain information on the board members from the Reports of Examination.<sup>2</sup> The Reports of Examination include the names, title, and year of birth of the directors. Consistent with the literature, we define independent directors as those who did not have affiliation with the bank in the last three years (Duchin et al 2010). We also

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<sup>1</sup> See Appendix A for a more detailed description of the construction of the data on meeting minutes.

<sup>2</sup> An example of a Report of Examination can be found in the FDIC's Examination manual. <https://www.fdic.gov/resources/supervision-and-examinations/examination-policies-manual/section17-1b.pdf> Information about the directors can be found in the Directors/Trustees and Officers section of the Report of Examination. In the example shown in the link, the information is presented on page 49.

require that independent directors do not share last names with other directors at the bank. We determine the gender of the directors manually based on their name. Reports of Examination were available for 25 of the 32 banks in our sample, and from that data we create an annual panel of directors and their characteristics from the Reports of Examination, from which we can also construct measures of turnover in the board members.

We also look at the characteristics of the board meetings—whether the meeting is a regularly scheduled board meeting or a special board meeting. We use the timestamps contained in a subsample of the meeting minutes where this information was available to approximate length of the board meeting. Finally, we look at which of the board members attended each meeting using information in the board meeting minutes on attendance.

Because our sample includes failed banks, we can look inside the boardroom during periods of normal operations (“normal times”) and periods when the bank is in distress (“distressed times”). We define distressed times as the last three years before failure, and normal times as three years to ten years before failure.

### **3. CHARACTERISTICS OF THE COMMUNITY BANKS**

The 32 banks in our sample had a total of approximately \$18 billion in assets at failure and led to losses to the deposit insurance fund of almost \$5 billion. The characteristics of the banks in our sample are similar to other banks that failed from 2009 to 2013 as shown in Table 1, which compares the financial characteristics of our sample banks with those of all banks that failed from 2009 to 2013.<sup>3</sup> Four years before failure, banks in our sample are of a similar size, similar deposits, similar capital position, and similar loan compositions as all banks that failed from 2009 to 2013. The banks in our sample resulted in a similar loss to the deposit insurance fund as a percent of assets at failure. The funding, capital position, and net interest margin are also similar to other failed banks during the period. The loan portfolio at the banks in our sample are also similar to all other failed banks, with the exception that the banks in our sample held more real estate loans than other failed banks. We do not expect that this will have a large influence on our results because that difference is relatively small. The timing of the failures of the banks in

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<sup>3</sup> We exclude banks that received assistance and did not fail and three banks that failed in Puerto Rico in 2010 to arrive at the sample of 461 failed banks from 2009 to 2013, 32 of which are in our sample.

our sample is similar to that of other failed banks, as shown in Figure 1. Furthermore, as shown in Panel B of Table 1, the banks in our sample have primary federal regulators that are similar to all failed banks. Given these characteristics, we think the banks in our sample are similar to other failed banks during the same period.

#### **4. SUMMARY OF COMMUNITY BANK BOARD STRUCTURE**

Much of the academic research about the boards of directors at banks has focused on publicly traded banks. To understand how our sample of banks compares more broadly to publicly traded banks we use data from BoardEx.<sup>4</sup> We identify 233 publicly traded banks between 2000 and 2013, 11 of which failed. From the BoardEx information, we create an annual panel of the members of the boards of directors.

As shown in Table 2, the banks in our sample have eight board members on average, while publicly traded banks that failed during the crisis have around eleven members. Surviving publicly traded banks also have larger boards, with nearly three more board members than community banks and a larger standard deviation. Note that both sets of publicly traded banks, failed and surviving, have a much higher skewness (equal to one and 0.6, respectively), indicating a large right tail in the distribution of the number of board members.

Why might community banks choose smaller number of board members than larger publicly traded banks? Larger boards benefit from a diversity of opinions and a larger pool of expertise to understand the complex nature of the firm (Dalton et al. 1999). Similarly, larger amounts of total assets may necessitate more board members for effective management. However, the costs of bigger boards may include excessive deliberation, free riding among directors, and difficulty in directors expressing their own opinions on matters. The fact that community bank boards are smaller than their publicly traded bank counterparts suggests that the costs of large boards may exceed the benefits for community banks. Furthermore, given their specialized focus on lending to local communities, community banks may have fewer advising

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<sup>4</sup> We use the CRSP-FRB link file provided by the Federal Reserve Bank of New York ([https://www.newyorkfed.org/research/banking\\_research/crsp-frb](https://www.newyorkfed.org/research/banking_research/crsp-frb)) to identify publicly traded banks between 2000 and 2013.



needs than publicly traded banks that operate with more diversified lines of businesses and complex firm structure.

Table 2 suggests that there are notable differences between the composition of community banks and their publicly traded counterparts. We observe that community bank boards exhibit lower levels of independence, with approximately 67 percent of board members classified as independent, in stark contrast to the average of between 83 percent and 85 percent in publicly traded banks. This discrepancy may stem from regulatory disparities mandating greater independence in publicly traded firms. Similarly, the higher prevalence of insiders in community banks suggests their boards require a nuanced understanding of their operations, particularly as it relates to the closely-knit communities and clientele. Furthermore, our analysis reveals a scarcity of female representation on community bank boards, with a mere 8 percent of directors being female, on average, and the median bank lacking any female representation at all, versus the roughly 9 percent mean and median observed in publicly traded banks. Table 2 indicates community banks having a slightly younger board demographic, with about 43 percent of directors in community banks aged above 60, compared to roughly 50 percent in publicly traded banks.

While Table 2 compares our sample to publicly traded commercial banks, another interesting point of comparison is that with larger bank holding companies (BHCs). Compared to the literature on large bank holding companies, community bank boards are significantly smaller. Based on 35 bank holding companies (BHCs) from 1986 to 1999, Adams and Mehran (2012) find that BHCs have 18 board members and are 69 percent independent. Similar to publicly traded commercial banks, BHCs must manage a different regulatory environment than community banks that mandates higher independence to enhance accountability, transparency, and investor confidence common with systemically significant institutions. BHCs can also consist of more than one bank and other subsidiaries, which could necessitate a larger board for effective governance. In contrast, community banks typically have localized operations and are more focused on serving specific communities than BHCs. These types of activities may be accomplished more efficiently with boards that have more insider expertise and are smaller.

Table 3 presents summary statistics regarding board turnover, with data at the bank-year level. During normal times, board turnover averages a rate of once every five years (0.18 at the bank-year level). Specifically, the average turnover consists of a new board member joining once

every five years, while directors rarely depart from these banks in normal times. Across the various director characteristics – namely, independence, age, and gender – we see no discernible trends in turnover rates. However, we do observe that new appointments of independent directors to community bank boards occur approximately once every six years, suggesting a gradual evolution in board composition towards heightened independence.

Table 3 illustrates how community banks experience turnover during times of distress. First, we observe that turnover occurs at an accelerated pace, with turnover occurring once every three years, as opposed to every five years during normal times. This increase in turnover is characterized by a director departing every two years, while a new director joins approximately every three years. Particularly noteworthy is the increase in the number of independent directors leaving the board, pronounced especially by directors above the age of 60. We do not observe any statistical changes to the number of female directors during distressed times, though it is important to highlight that the sample size of female directors in community banks is limited.

## **5. CHARACTERISTICS OF THE COMMUNITY BANK BOARD MEETINGS**

To provide context for the analysis of the content of the board meetings, we look at the frequency of, duration of, and attendance at board meetings for community banks. As shown in Table 4, on average, bank boards meet approximately 13 times per year during normal times, consistent with regular monthly meetings. Special meetings occur about twice per year on average during normal times, suggestive of the efficiency and foresight embedded within routine community bank board meetings. We see that the average board meeting spans a duration of about two hours and twenty minutes, while special meetings are shorter, lasting around one hour and forty minutes.

Table 4 reveals notable shifts in the meetings of community bank boards during distressed times. We observe a significant decrease in the number of regular board meetings held annually, averaging about eleven meetings per year, compared to the monthly meeting frequency during normal times. The decrease in regular meetings is accompanied by a significant rise in impromptu meetings, with about 3 special meetings per year. Despite these changes, the duration of meetings remains relatively constant at around two hours and twenty minutes for regular meetings and an hour and forty minutes for special meetings.

In terms of attendance, community bank boards show strong engagement with an average of 67 percent of board members in attendance. We observe 62 percent of the available independent board members, 64 percent of board members aged 60 and above, and 64 percent of female directors present on average. Attendance at the board meetings generally increases in distressed times, with 74 percent of available board members present in distressed times compared to 67 percent in normal times. Independent directors and female directors are particularly more present during the meetings in distressed times.

## **6. CONTENT OF THE BOARD MEETINGS**

With the context of who is on the boards at community banks and characteristics of the board meetings, we turn to analyzing the content of the board meeting minutes. We analyze the content of the board meeting minutes using two approaches. First, we evaluate the general sentiment that is embedded in the board minutes using three different measures of sentiment. Next, we look more specifically at the content of the board meeting minutes focusing on general themes that arise from the discussion.

### **6.1 BOARD SENTIMENT**

We evaluate the sentiment contained in the board meeting minutes, to gauge the overall tone of the board meetings as banks near failure. We use three different sentiment measures: (1) Loughran-McDonald, (2) Financial Stability, and (3) FinBERT. To construct the sentiment measure using the Loughran-McDonald approach, we count the number of words in the minutes that are categorized as positive using the dictionary provided in Loughran and McDonald (2011) and subtract the words that are categorized as negative words in the dictionary. The resulting net measure is then divided by the number of all words. A positive value of the measure would indicate positive sentiment, and a negative value, negative sentiment. We construct a similar measure for the financial stability dictionary from Correa et al. (2021). Loughran and McDonald (2011) constructed their dictionary to closely reflect the text in financial documents. Correa et al. (2021) constructed their dictionary to specifically measure language related to financial stability.

The third measure we use is FinBERT, a specialized language model based on BERT,<sup>5</sup> designed specifically for natural language processing tasks in financial domains. FinBERT offers significant advantages over traditional sentiment methods, as evidenced by its superior performance across various metrics compared to current state-of-the-art results for financial sentiment analysis datasets. Its ability to understand nuances of financial text surpasses that of conventional machine learning techniques and dictionary-based methods, owing to its usage of BERT embeddings and the context surrounding the entirety of the text. We estimate our third measure by classifying each individual sentence within the board minutes using FinBERT and calculate the net sentiment of the meeting as the percentage of positive sentences less the percentage of negative sentences. By integrating these three approaches, we aim to achieve consistent and robust sentiment analysis results, irrespective of the method employed.

Panel A of Table 5 presents board attention sentiment from the meeting minutes. During normal times, the meetings span approximately 3,600 words, which translates to approximately 6 pages of single-spaced text. During distressed times, the word count increases to approximately 4,600 words—almost a 30 percent increase.

We observe that sentiment in community bank board meetings is typically neutral, albeit slightly positive, as measured by FinBERT and the Financial Stability sentiment measures. The Loughran McDonald sentiment measure yields a negative tone on average—largely a result of the LM dictionary containing an overwhelming number of negative words compared with positive words.

Lastly, in Panel A of Table 5 we show how sentiment changes during times of distress. Our preferred sentiment measure, based on the FinBERT model, drops substantially, by 250 percent, in distressed times. This decline is corroborated by the financial stability dictionary-based measures which shows a decrease of 122 percent and the Loughran-McDonald measure which shows a decrease of 15 percent. Figures 2, 3, and 4 illustrate these trends over time, with tonality in all three measures taking a notable negative turn about three years before failure. The negative discourse we observe within the board meetings is consistent with boards relaying a more cautious and pessimistic view of the bank's viability and prospects. In

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<sup>5</sup> BERT, or Bidirectional Encoder Representations from Transformers, is a language model developed by Devlin et al. (2018). This model, based on the Transformer architecture, produces embeddings of a given text that capture the semantic meaning. FinBERT is a specialized model based on BERT that produces sentiment from the estimated embeddings.

contrast, during normal times the board minutes exhibit generally neutral tone, reflecting a more stable operating environment where discussions are relatively dispassionate and routine.

## **6.2 THEMES OF BOARD MEETINGS**

Distilling the vast amount of board meeting minutes in our sample—totalling approximately 4,000 minutes—into various themes manually would be an arduous and time-consuming task. Researchers often turn to computational methods, particularly topic modelling, to facilitate this process. In developing our own set of relevant topics, we use a hybrid machine learning and institutional knowledge approach, where we use the output of a topic modelling algorithm to inspire the creation of specific topics relevant for our analysis.

Topic modelling, often performed via an algorithm known as Latent Dirichlet Allocation (LDA), is a statistical technique that uncovers latent themes within a corpus of documents. LDA assumes that each document is a mixture of various topics, with words associated with specific topics occurring more frequently within documents that focus on those topics. However, traditional topic modelling methods like LDA have their limitations, particularly in capturing the nuanced semantic relationships across themes. As a result, we employ a novel technique, BERTopic, to better streamline and enhance the topic modelling process. BERTopic harnesses the power of BERT embeddings to capture common themes across a corpus.

We apply BERTopic to our corpus to visualize the underlying topics in the board meeting minutes. Because these approaches still can lead to many topics unrelated to our own analysis (for example, one topic groups the names of particular board members, others relate to overly specific themes such as ATM usage, and others include overly broad topics), we use the BERTopic output combined with institutional knowledge of community bank operations to create a final list of topics.

The distinct topics we create from the corpus of board meeting minutes shed light on crucial aspects of community bank operations: Capital, Examination Oversight, Credit Quality Concerns, Risk, Meeting Administration, and Lending. The first topic, labelled "Capital," includes discussions surrounding the capital adequacy of the bank, represented by the term "capital." The topic of "Examination Oversight" encompasses discourse related to regulatory compliance, examinations, and oversight mechanisms. "Credit Quality Concerns" highlights

the importance of monitoring asset quality, including problem loans and nonperforming assets, as indicators of financial health and risk exposure. The "Risk" topic, proxied by the word "risk", focuses on the need to assess and mitigate various forms of risk inherent in banking activities, ranging from credit and market risk to operational and compliance risk. The "Meeting Administration" topic consists of words related to meeting formalities (e.g. Robert's Rules of Order), pivotal for ensuring effective meetings. Finally, the "Lending" topic highlights the central role of lending activities in community banks' operations. Collectively, these topics offer valuable insights into the priorities, risk management practices, and governance themes of community banks and are our main focus when measuring the attention of the boards during the meetings.

We measure the importance of these topics in the board meeting minutes by calculating the frequency counts of the topics we generated, which are shown in Panel B of Table 5. It is important to acknowledge that word frequencies may not fully measure the breadth and depth of board discussions for those topics, as the usage of these words may underestimate their attention (for example, "capital" may seldom appear, but it is in the larger context of discussions about solvency issues, thus the frequency of "capital" may underestimate the attention to solvency and capital more broadly). Nonetheless, word counts provide insights into relative priorities, both across topics and across normal and distressed times. The most prevalent topic during normal times is that related to meeting administration, constituting nearly 5 percent of all words, reflective of the boards' diligence in adhering to procedural formalities during meetings. Next, discussions of lending activities are about 3 percent of all words, consistent with the community bank boards prioritizing monitoring credit provisioning and their loan portfolios. Credit quality concerns constitute 0.46 percent and examination oversight constitute 0.64 percent of all words. The attention to "capital" occurs approximately 0.22 percent across the text during normal times.

During distressed times, we see a significant increase in discussions about capital, suggestive of the board members seeking to bolster capital to avoid solvency problems. The stark shift in attention for this topic is underscored in Figure 5, where we plot the average frequency of the capital topic in the discussions. We see that the change in focus begins approximately two years before the bank's failure, on average. The frequency of the examination oversight topic also increases during distressed times, but more steadily, as

shown in Figure 6. The shift of the discussion to regulatory scrutiny begins approximately 25 quarters before failure and results in 36 percent higher frequency of examination oversight topic during the distressed period. Furthermore, we observe increases in attention to risk (of nearly 27 percent, shown in Figure 8) and credit quality concerns (roughly 17 percent, shown in Figure 7). This suggests that the boards' attention moves towards managing and mitigating potential risks emanating from their assets that could adversely impact the banks' stability. Conversely, we see that topics such as meeting administration and lending receive less attention during distressed times as shown in Figure 9 and 10. This shift in focus away from lending suggests that the boards believe traditional lending activity done in normal times may no longer be viable or prioritized given the underlying financial challenges the bank faces during times of distress. The reduction in meeting administration related words may be a result of the time-consuming nature of governance processes, and these formalities are crowded out by discussions of more pressing issues. Overall, our results on the shift in attention suggest that boards focus on strategic actions that are aimed at stabilizing the bank, for example capitalizing the bank and addressing regulatory concerns, rather than focusing on lending activities or meeting formalities.

## **7. CONCLUSION**

In this paper, we study the corporate governance of a critical part of local economies: community banks. Using a unique dataset leveraging board structure, meeting minutes, and bank characteristics, we document several stylized facts of community banks. Community bank boards have eight members on average, and the boards have fewer independent directors than larger, publicly traded banks. Community bank boards meet monthly for about two hours. To measure the content of the board of director meetings, we use topic modelling alongside our institutional knowledge of community banks to isolate the attention of meetings to various topics.

Near failure, we observe changes to the board structure and meeting attention of the community banks. As the banks approach failure, turnover increases driven by an increase in departure of board members. The board of directors convene fewer regularly scheduled meeting in lieu of more impromptu meetings. Near failure, discussions associated with capital and examination oversight nearly double, while boards discuss meeting formalities and

lending less.

Given the pivotal role community banks play in the economy by supporting consumers, small businesses, and small farms, understanding the corporate governance of these financial institutions is important for financial stability. Effective boards should be able to oversee and monitor banks' risks appropriately. We hope our work provides some impetus to further research on the governance of community banks who play a critical role in the economy.



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**Table 1: Descriptive Statistics of Sample Banks and All Failed Banks 2009 to 2013**

Panel A: Financials							
	Sample (N=32)			All Failed Banks (N=429)			Mann Whitney U- Test P- Value
	Mean	SD	Median	Mean	SD	Median	
Panel A.1: At Failure							
Total Assets at Resolution	550.8	650.7	292.4	657.0	1,891.4	211.2	0.25
Loss Rate	25.3	8.1	25.3	23.4	13.3	22.2	0.21
Panel A.2: Four Years Before Failure							
Deposits	80.5	8.0	81.9	79.3	11.6	82.3	0.99
Core Deposit	57.1	14.7	60.4	57.2	14.5	59.1	0.93
Tier 1 Capital Ratio	9.9	2.7	9.5	11.5	9.2	8.9	0.41
Equity	10.1	2.8	9.6	11.9	9.2	9.3	0.99
Consumer Loans	1.6	1.4	1.2	2.3	2.8	1.5	0.51
C&I Loans	12.8	14.1	9.3	9.4	7.3	7.9	0.52
C&D Loans	21.1	15.2	20.4	18.8	14.0	15.8	0.44
Real Estate Loans	65.8	20.5	72.5	61.1	16.0	63.6	0.02
Owned Real Estate	0.2	0.4	0.0	0.3	0.8	0.0	0.55
Net Interest Margin	4.5	1.0	4.7	4.2	1.2	4.1	0.06
Panel B: Primary Federal Regulator							
		Sample (N=32)		All Failed Banks (N=429)			
FDIC		19	(59.4%)	272	(63.4%)		
Non-FDIC (Fed, OCC, OTS)		13	(40.6%)	157	(36.6%)		

*Notes:* Total assets are expressed in millions of dollars. Deposits, loans, and equity are expressed as a percent of total assets. Data for four years before failure are from the Call Reports and data at failure is from the FDIC Failure Transaction Database. All failed banks include banks that failed from 2009 to 2013 excluding banks that received assistance but did not fail and three Puerto Rico banks that failed in 2010. The table reports the mean, standard deviation, and median of the variables. The last column provides the p-value of Mann Whitney test comparing medians.

*Sources:* FDIC Bank Failures and Assistance (<https://banks.data.fdic.gov/bankfind-suite/failures>) and Call Reports.

**Table 2: Structure of the Boards of Community Banks  
versus Publicly Traded Banks**

Variable	N	Mean	Median	Std Dev	Skewness
<i>Sample</i>					
	225				
Number of Directors		8.16	8	2.83	0.61
Percent Independent		66.93	71.43	21.36	-0.59
Percent Above 60		42.71	42.86	26.18	-0.23
Percent Female		7.74	0	10.34	1.53
<i>Failed Publicly Traded Banks</i>					
	109				
Number of Directors		11.4	11	4.3	1.0
Percent Independent		82.8	85.7	9.8	-1.6
Percent Above 60		47.9	50.0	19.5	-0.4
Percent Female		9.3	9.1	5.8	0.0
<i>Surviving Publicly Traded Banks</i>					
	3,477				
Number of Directors		10.9	11	3.2	0.6
Percent Independent		85.1	87.5	8.3	-1.6
Percent Above 60		51.8	53.3	20.0	-0.1
Percent Female		9.3	9.1	9.0	1.0

*Notes:* The sample includes annual data for the 25 institutions that have Reports of Examination, and includes any data we have from 2000 to 2013. Failed publicly traded banks includes annual data from 2000 to 2013 for 11 publicly traded banks that failed. Surviving publicly traded banks includes annual data from 2000 to 2013 for 222 publicly traded banks.

*Sources:* Reports of Examination and BoardEx.

**Table 3: Board Turnover During Normal and Distressed Times**

Variable	Normal Times N=146		Distressed Times N=72		Difference	
	Mean	Std Dev	Mean	Std Dev		
Turnover	0.18	0.38	0.35	0.48	0.17	***
New Directors	0.23	0.55	0.36	0.79	0.13	***
Departing Directors	0.03	0.20	0.49	1.29	0.46	***
New Independent Directors	0.17	0.48	0.19	0.64	0.02	
Departing Independent Directors	0.00	0.00	0.32	0.90	0.32	***
New Directors Above 60	0.08	0.30	0.06	0.23	-0.03	
Departing Directors Above 60	0.01	0.17	0.25	0.69	0.24	***
New Female Directors	0.02	0.14	0.06	0.23	0.04	
Departing Female Directors	0.00	0.00	0.03	0.17	0.03	

This table reports the summary of board turnover for the sample of 25 banks for which we have the Reports of Examination. The variables are measured at annually from 2001 to 2013. Turnover is the number of directors that either departed or joined the board that year, new directors are those that join that bank in a given year, and departing directors are those that departed in a given year. Distressed times are the last three years before failure, and normal times as three years to ten years before failure. \*\*\* Indicates significance at the 99 percent confidence level, \*\* indicates significance at the 95 percent level, and \* indicates significance at the 90 percent level.

*Source:* Reports of Examination.

**Table 4: Meeting Frequency and Attendance**

Variable	Normal Times			Distressed Times			
	N	Mean	Std Dev	N	Mean	Std Dev	Difference
<i>Meeting Frequency</i>							
Regular Meetings Per Year	217	12.81	6.29	120	11.23	5.51	-1.58 **
Special Meetings Per Year	58	1.98	1.29	50	3.4	3.34	1.42 ***
<i>Time Spent in Meetings</i>							
Time Per Meeting (minutes)	1,493	138.05	103.90	626	134.94	72.95	-3.11
Time Per Special Meeting (minutes)	77	101.84	118.06	118	99.16	57.30	-2.68
<i>Attendance</i>							
Directors Attending, Percent	2,191	66.99	29.66	1,242	73.97	27.45	6.98 ***
Independent Directors Attending, Percent	2,191	62.16	34.52	1,242	72.3	33.12	10.14 ***
Directors Above 60 Attending, Percent	2,191	64.45	34.71	1,242	58.77	30	-5.68 ***
Female Directors Attending, Percent	2,191	49.18	47.61	1,242	65.96	46.36	16.78 ***

The Meeting Frequency panel uses data from meetings for 10 years before failure at the 32 banks in our sample and is aggregated by year from 2001 to 2013. The Time Spent in Meetings panel uses the 32 banks in our sample for 2001 to 2013. The Attendance panel includes the 25 banks for which we have Reports of Examination with demographic information of the board members. Distressed times are the last three years before failure, and normal times as three years to ten years before failure. \*\*\* Indicates significance at the 99 percent confidence level, \*\* indicates significance at the 95 percent level, \* indicates significance at the 90 percent level.

Source: Board Meeting Minutes and Reports of Examination.

**Table 5**  
**Board Attention and Sentiment**  
**During Normal and Distressed Times**

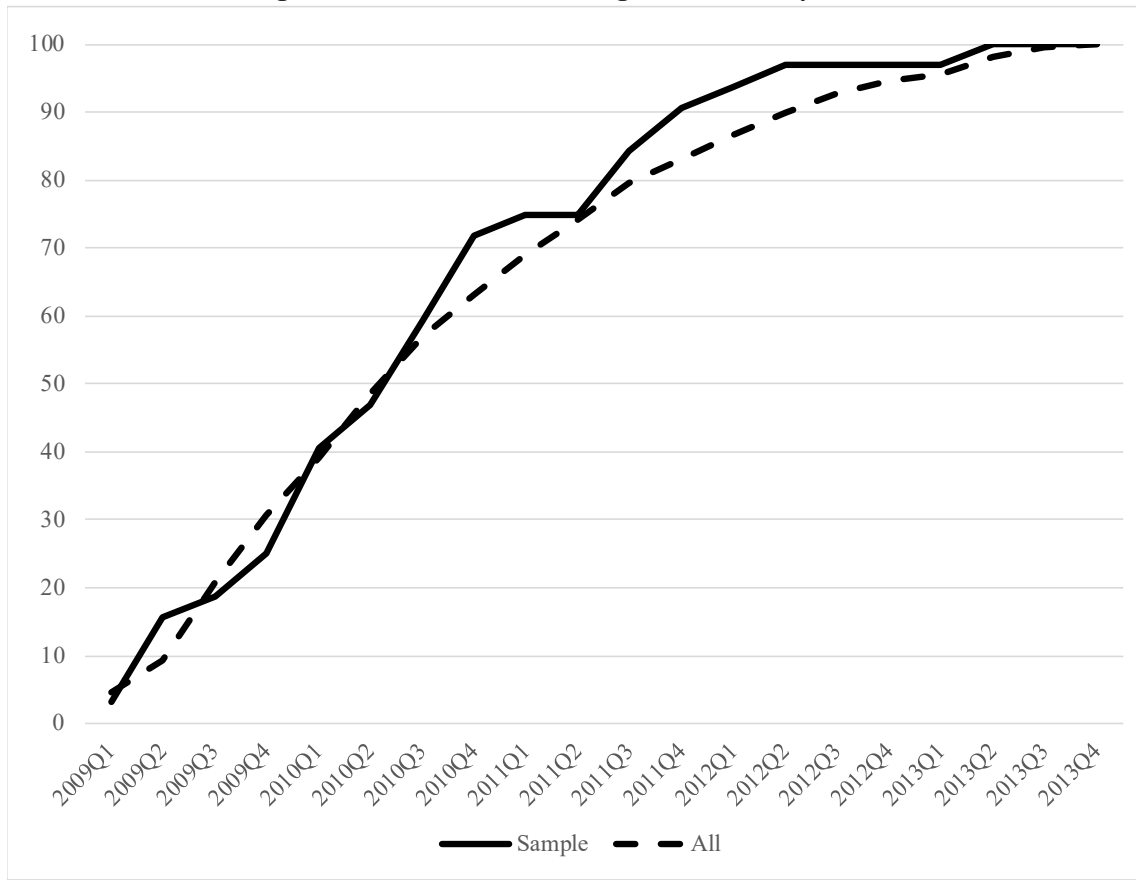
	Normal Times	Distressed Times	Percentage Change	Significance of T-Test
<b>Panel A: Sentiment</b>				
Total Word Count	3,602	4,616	28%	***
FinBert Sentiment	0.06	-0.09	-250%	***
Financial Stability Sentiment	0.09	-0.02	-122%	***
Loughran-Mc Donald Sentiment	-0.41	-0.47	-15%	***
<b>Panel B: Board Attention</b>				
Capital	0.22	0.37	68%	***
Credit Quality Concerns	0.46	0.54	17%	***
Examination Oversight	0.64	0.87	36%	***
Governance	4.93	4.58	-7%	***
Lending	3.07	2.64	-14%	***
Risk	0.15	0.19	27%	***

*Notes:* All topics word counts are expressed as a percent of total word counts in minutes for the quarter. Distressed times are the last three years before failure, and normal times as three years to ten years before failure. \*\*\* Indicates significance at the 99 percent confidence level, \*\* indicates significance at the 95 percent level, and \* indicates significance at the 90 percent level.

*Source:* Board Meeting Minutes, Author's calculations.

## FIGURES

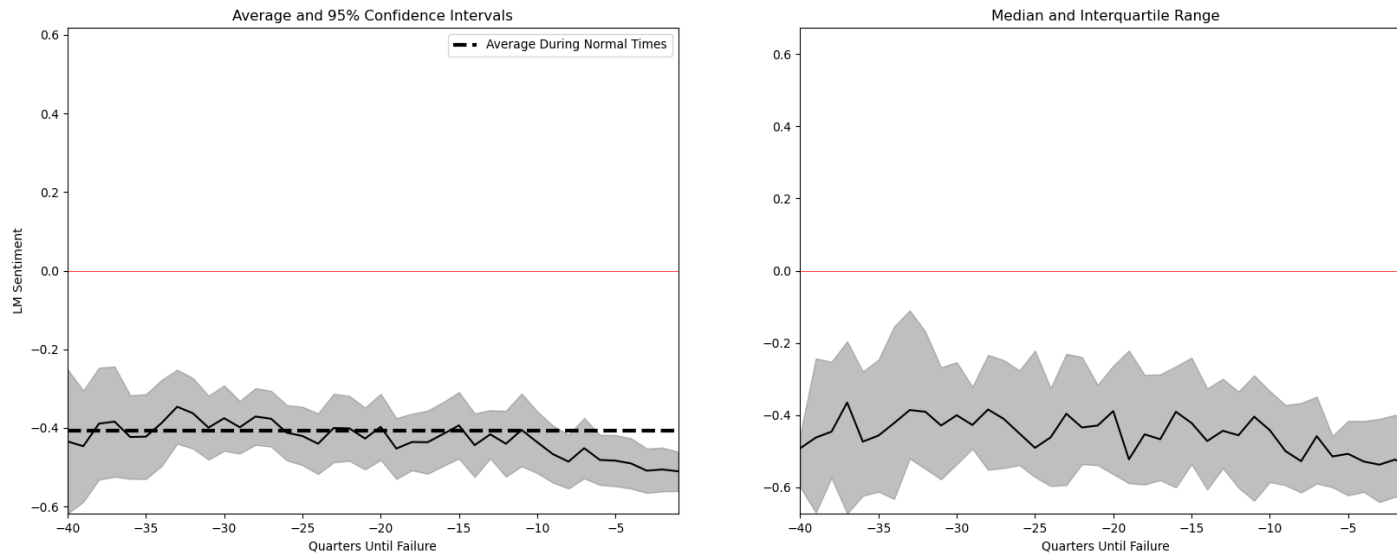
Figure 1: Cumulative Percentage of Failures by Quarter



Source: FDIC Bank Failures and Assistance (<https://banks.data.fdic.gov/bankfind-suite/failures>).



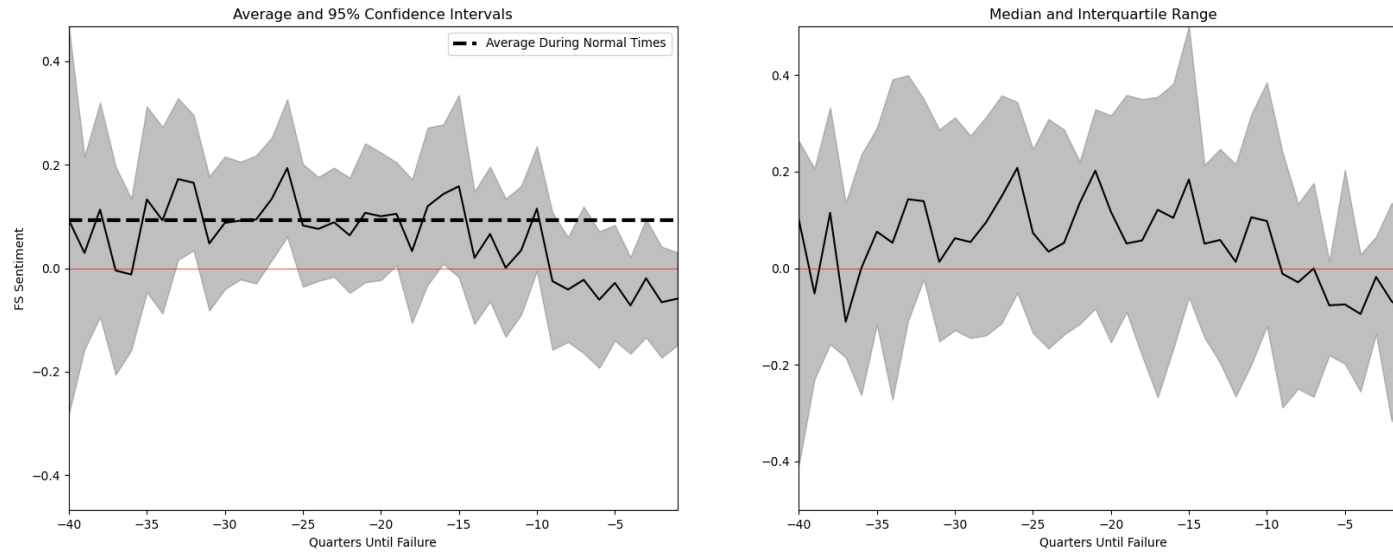
**Figure 2: Loughran-McDonald Dictionary Sentiment**



The first panel shows the average sentiment, the upper and lower 95 percent confidence intervals, and the average during normal times. The second panel shows the median sentiment measure and the interquartile range.

*Source:* Board Meeting Minutes, Author's Calculations

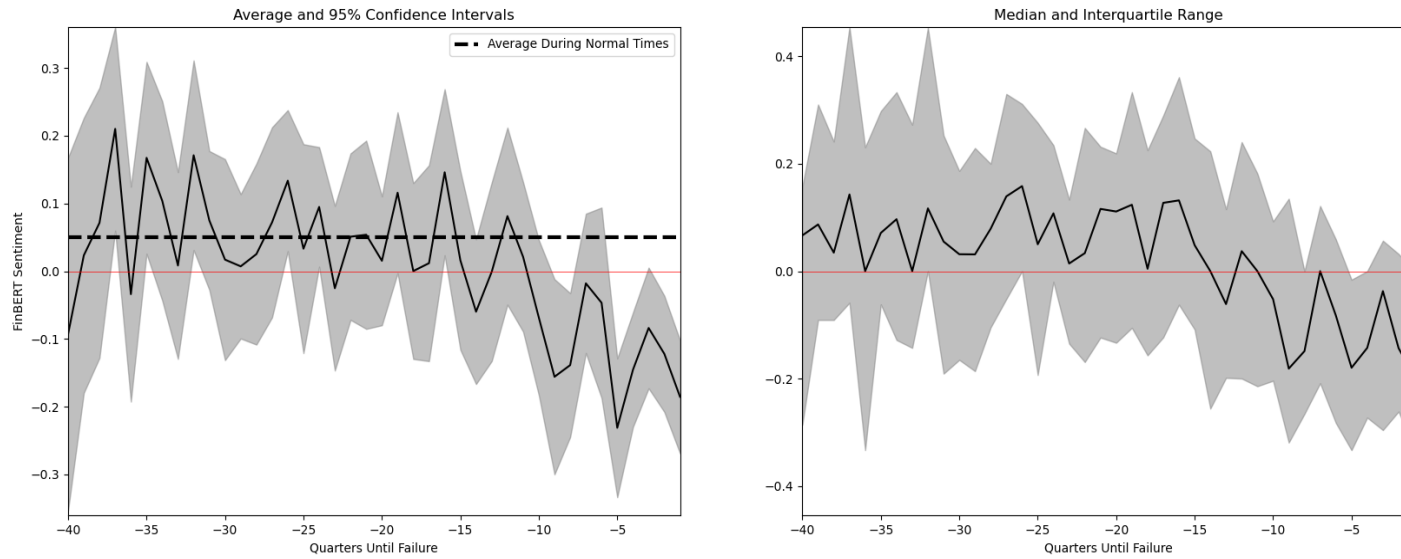
**Figure 3: Financial Stability Dictionary Sentiment**



The first panel shows the average sentiment, the upper and lower 95 percent confidence intervals, and the average during normal times. The second panel shows the median sentiment measure and the interquartile range.

*Source:* Board Meeting Minutes, Author's Calculations

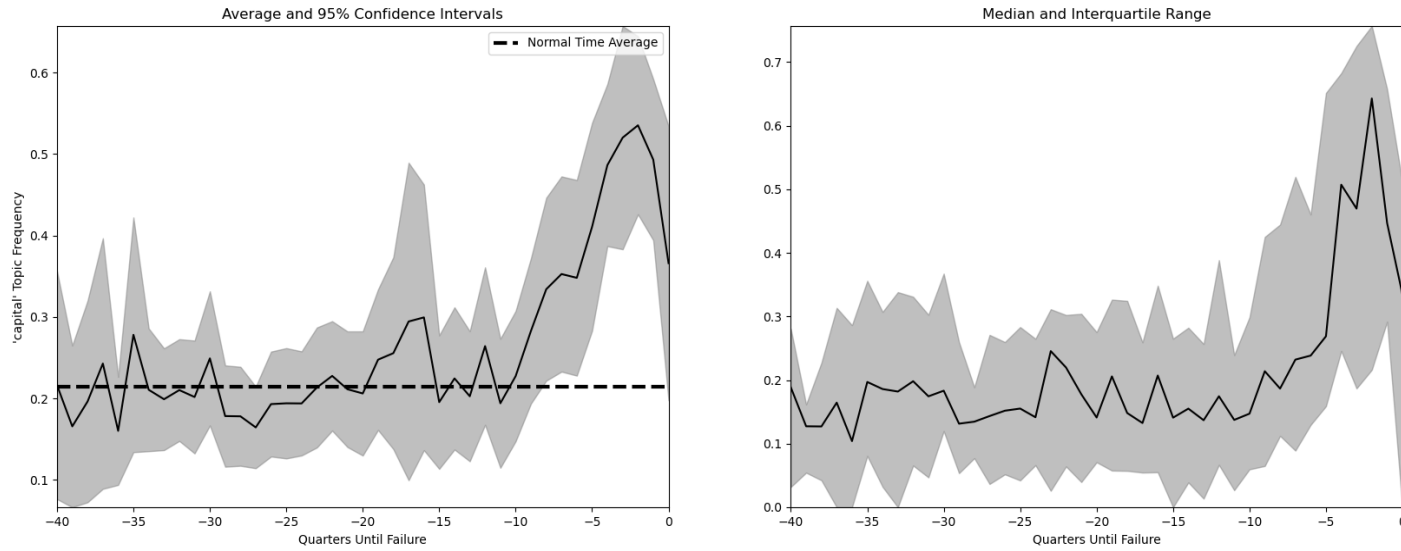
**Figure 4: FinBERT Sentiment**



The first panel shows the average sentiment, the upper and lower 95 percent confidence intervals, and the average during normal times. The second panel shows the median sentiment measure and the interquartile range.

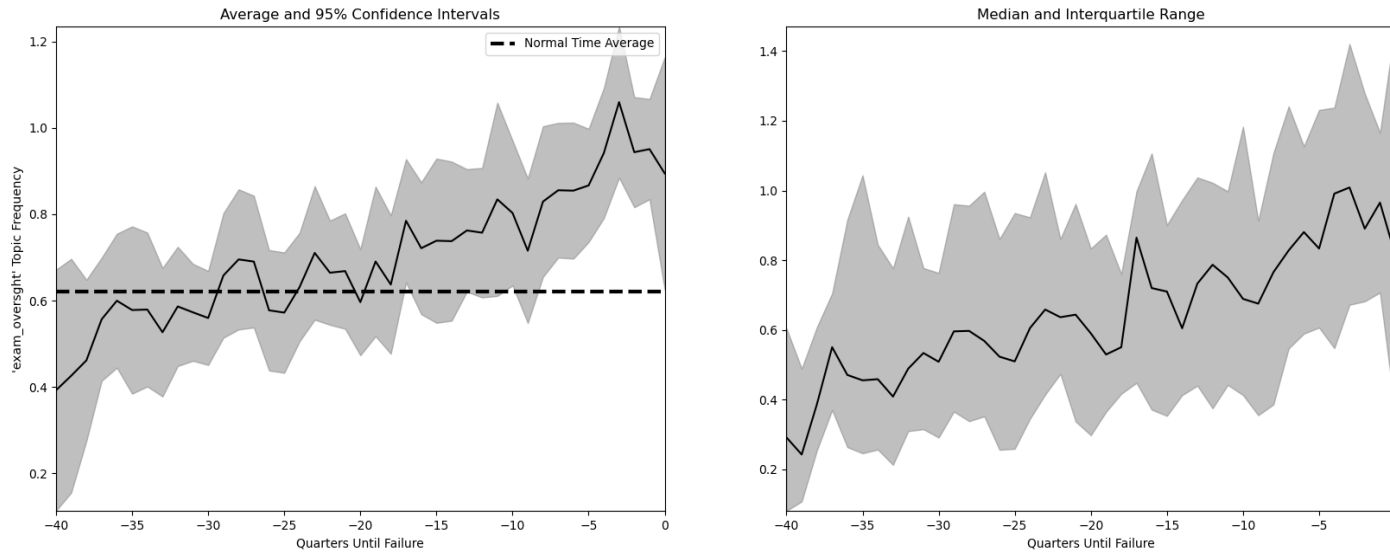
Source: Board Meeting Minutes, Author's Calculations

**Figure 5: Capital Topic Frequency**



The capital topic includes the word "capital." The charts show the number of appearances of the word in the minutes as a fraction of the total words. The first panel shows the average frequency, the upper and lower 95 percent confidence intervals and the average during normal times. The second panel shows the median frequency and the interquartile range.  
Source: Board Meeting Minutes, Authors' calculations.

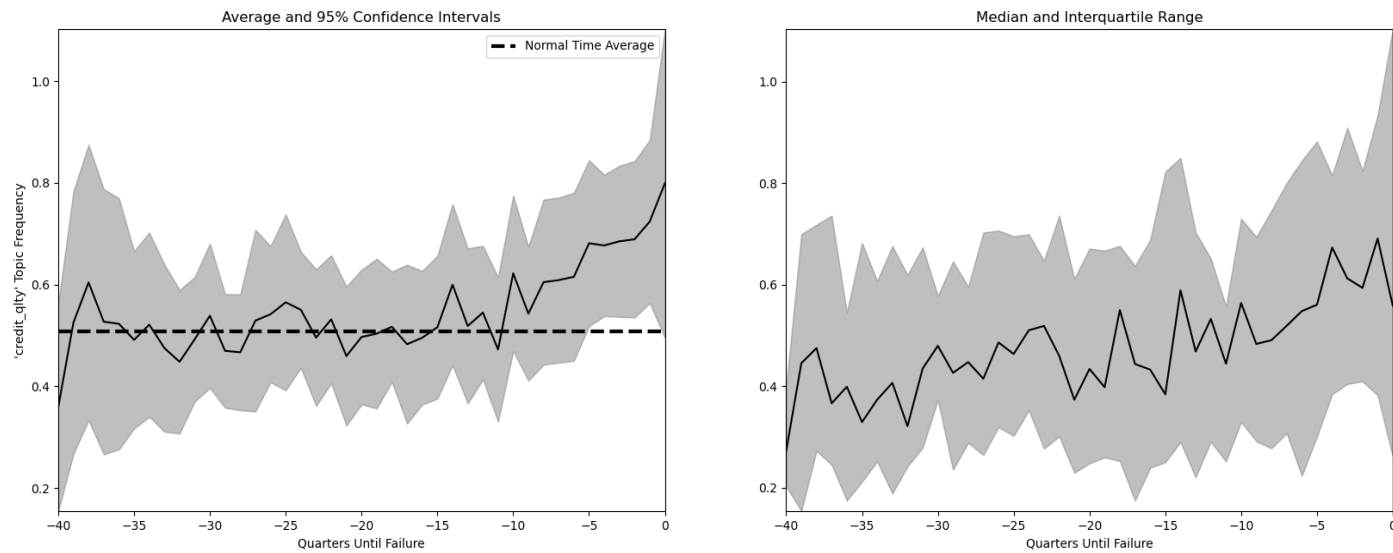
**Figure 6 : Examination Oversight Topic Frequency**



The examination oversight topic includes the words "examiners", "examination", "compliance", "regulation", "audit", "sars", "camels\_rating", "composite\_rating", "community\_reinvestment\_act", "regulators", "fdic", "occ", "state\_examiners", "safety", "soundness", "guidelines", and "assessments." The charts show the number of appearances of the topic in the minutes as a fraction of the total words. The first panel shows the average frequency, the upper and lower 95 percent confidence intervals and the average during normal times. The second panel shows the median frequency and the interquartile range.

Source: Board Meeting Minutes, Authors' calculations.

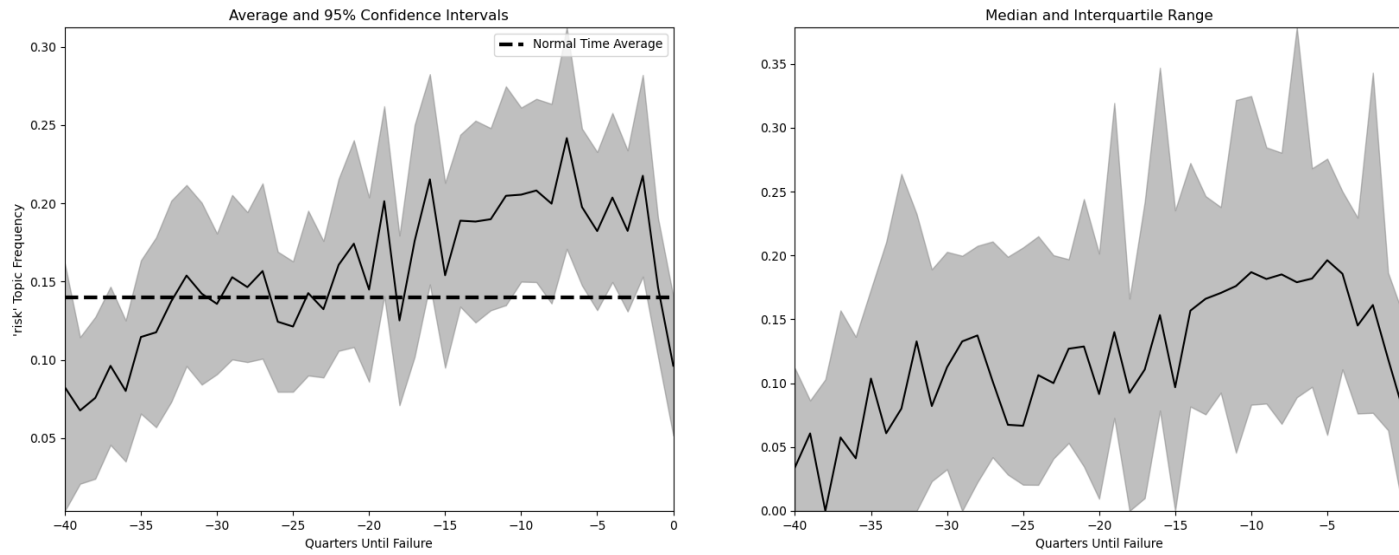
**Figure 7: Credit Quality Concerns Topic Frequency**



The credit quality concerns topic includes the word "ore" (other real estate owned), "problem\_loans", "foreclosures", " and "nonperforming\_assets." The charts show the number of appearances of the topic in the minutes as a fraction of the total words. The first panel shows the average frequency, the upper and lower 95 perence confident intervals and the average during normal times. The second panel shows the median frequency and the interquartile range.

*Source:* Board Meeting Minutes, Authors' calculations.

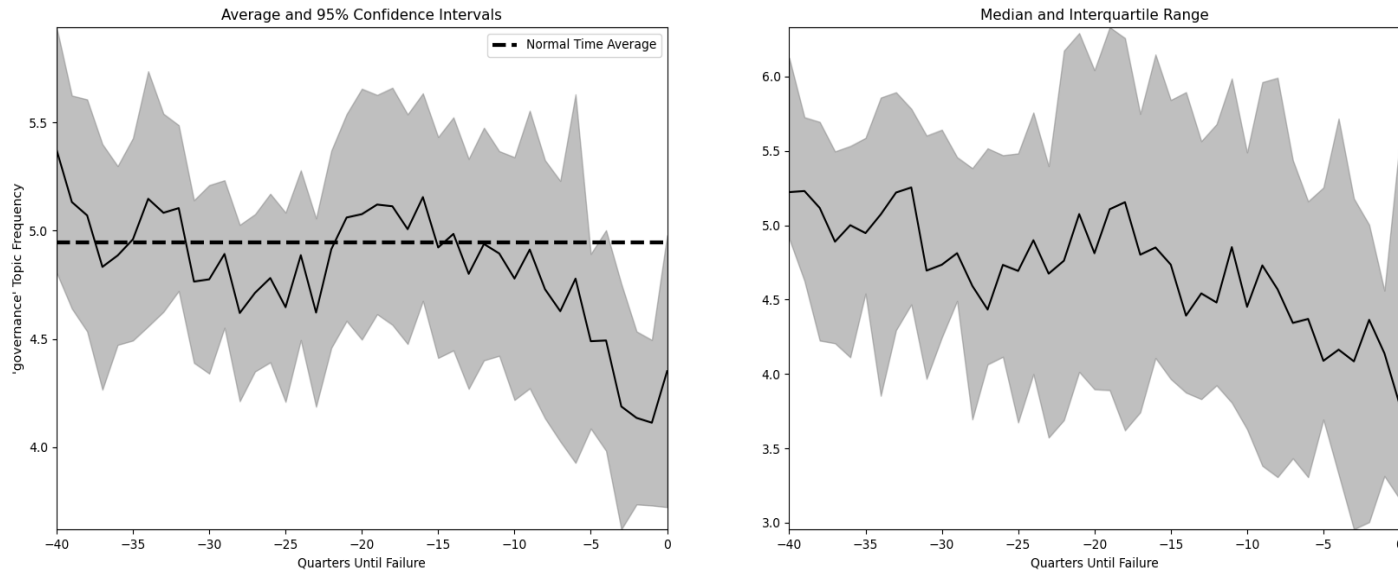
**Figure 8: Risk Topic Frequency**



The risk topic includes the word "risk." The charts show the number of appearances of the topic in the minutes as a fraction of the total words. The first panel shows the average frequency, the upper and lower 95 percent confidence intervals and the average during normal times. The second panel shows the median frequency measure and the interquartile range.

*Source:* Board Meeting Minutes, Authors' calculations.

**Figure 9: Meeting Administration Topic Frequency**

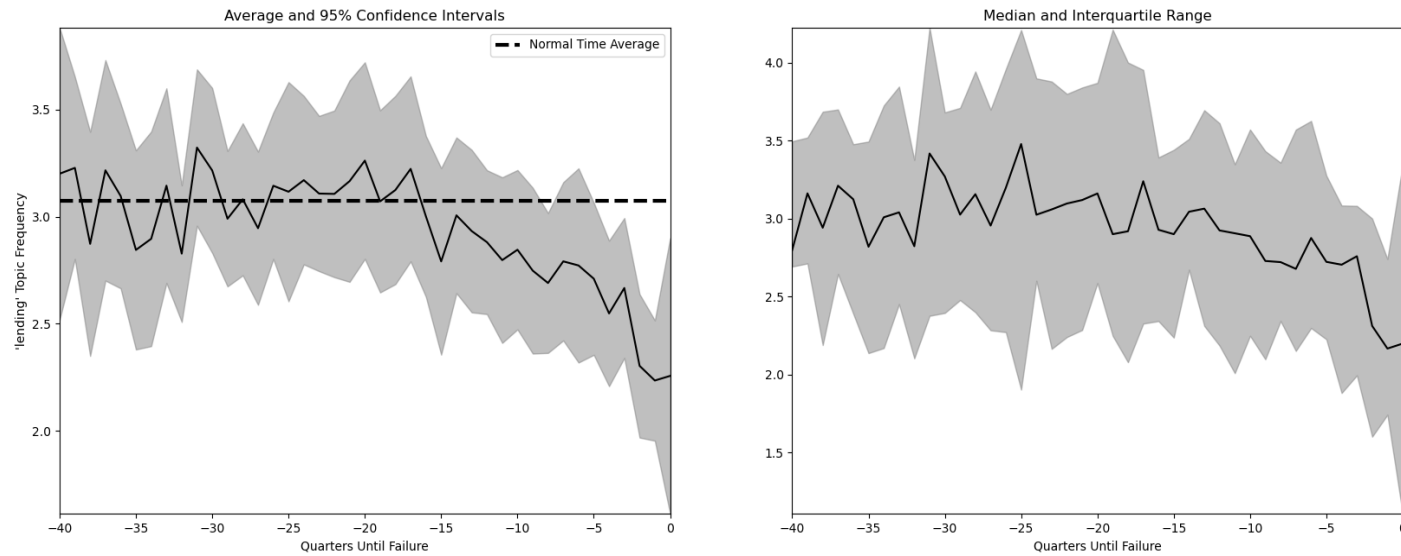


The meeting administration topic includes the word "board", "directors", "unanimously\_approved", "motion\_approved", "committee", "chairman", "vote", "voted", "president", "management", "approve", and "absent." The charts show the number of appearances of the topic in the minutes as a fraction of the total words. The first panel shows the average frequency, the upper and lower 95 percent confidence intervals and the average during normal times. The second panel shows the median frequency and the interquartile range.

*Source:* Board Meeting Minutes, Authors' calculations.



**Figure 10: Lending Topic Frequency**



The lending topic includes the words "lending", "loan", "mortgage", "commitments", "construction", "commercial\_lending", "credit", "lease", "asset", and "collateral." The charts show the number of appearances of the topic in the minutes as a fraction of the total words. The first panel shows the average frequency, the upper and lower 95 percent confidence intervals, and the average during normal times. The second panel shows the median frequency and the interquartile range.

*Source:* Board Meeting Minutes, Authors' calculations.

## **APPENDIX A: BUILDING THE DATASET OF BOARD OF DIRECTOR MEETING MINUTES**

First, we build a unique and novel dataset of board of director meeting minutes. This dataset was obtained from the Federal Deposit Insurance Corporation's (FDIC) failed bank environment, which houses information from failed banks that were placed in receivership during and after the recent 2007 to 2009 financial crisis. This environment consists of unstructured, unlabelled data across various types of file systems. To overcome the data challenge of identifying and classifying board of director minutes from other types of documents, such as regulatory filings or internal documents, we build a machine learning classification model to flag board of director meeting minutes.

Our sample begins with 174 banks for which we have data. We restrict the set of candidates for board of director meeting minutes by keeping only files that contain the word "minutes" anywhere in the text. This reduces the set of possible files to nearly half a million documents. We manually labelled roughly 33,000 randomly sampled documents from this set of documents to create a training dataset. We estimated seven different machine learning models using the training dataset. To overcome the question of which model we should 'listen' to with respect to the prediction, we employ an ensembling model using the predictions of all seven models to add one final classification layer. We deployed all models on the set of potential unlabelled documents, and then fed the predictions through the final ensembling layer to create the final prediction for each unseen document. The model flagged about 37,000 documents as board of director meeting minutes. We manually verify the output for these predictions to ensure they are in fact board of director meeting minutes. The final dataset, including the training and predicted datasets, includes roughly 24,000 board of director minutes for 174 banks.

We next assess coverage for the banks in our sample. We review each board of director meeting minute and note any references to other dates of meetings and check to see if we have minutes for meetings on those dates. For some banks, we are unable to find the text of the minutes for the other meeting dates that are mentioned. For example, in the minutes for a particular meeting it might refer to a different meeting that was held the previous month;

however, we are unable to find meeting minutes for the previous month in the documents. We were able to find text for 83 percent of all meeting dates mentioned.

To ensure consistency across years and within banks, we restrict our sample to after 2001 and for banks with at least six meetings per year, excluding the year of failure. This restriction reduces the number of banks to 32, and 4,605 board of director meeting minutes.