What Bank Examiners See: Supervisory Discretion during the Great Depression

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Abstract

Banking supervision underpins financial stability, yet recent shifts away from discretion and toward standardized metrics have renewed debate about its optimal design. This study provides rare empirical evidence on the importance of examiner discretion. Using newly digitized examination reports, we study a 1920s framework in which Virginia bank regulators directed examiners to flag persistent overreliance on short-term interbank borrowing. Discretion-based scrutiny reduced borrowing volumes but not reliance, and banks that remained under supervisory concern were more likely to fail during the Great Depression. Examiner judgment thus identified systemic vulnerabilities that standardized metrics overlooked, underscoring the role of discretion in effective supervision.

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1 Introduction

Banking supervision is essential for maintaining financial stability, but its optimal design remains contested. Recent regulatory shifts following the banking turmoil of 2023 have revived a fundamental question: should supervision rely primarily on uniform, quantifiable measures, or on the expertise and judgment of examiners? On the one hand, standardized metrics promote consistency and transparency but may overlook emerging or idiosyncratic risks. On the other hand, discretion allows supervisors to identify nuanced vulnerabilities but introduces subjectivity and potential inconsistency. Finding the right balance between rules and discretion is a first-order question for supervisory design.[1]

Central to this debate is whether examiners, when exercising discretion, actually identify systemic vulnerabilities accurately. Discretion is valuable only if supervisory judgments meaningfully predict future bank outcomes. Yet discretionary assessments are inherently difficult to study empirically. Supervisory data are confidential, restricting researchers' ability to observe the criteria examiners use and how banks respond to their assessments. As a result, prior studies have focused on overall supervisory attention rather than its content, relying on coarse proxies such as the number of examinations, distance from supervisory offices, or hours spent on examinations. These measures capture the intensity of oversight but cannot distinguish rule-based enforcement from discretionary examiner judgment.

This study overcomes these limitations by drawing on newly digitized archival examination reports from the Virginia State Banking Department in the 1920s. During this period, regulators grew increasingly concerned that many banks had become dependent on interbank borrowing to manage persistent liquidity shortfalls. They viewed frequent borrowing not merely as a technical violation, but as a symptom of financial weakness and a potential threat to systemic stability. In response, the department introduced a qualitative assessment of "habitual borrowing" during on-site examinations beginning in 1922, requiring examiners to judge whether a bank's reliance on borrowed funds had become a sustained pattern of dependency.

The habitual borrowing designation operated alongside an existing framework of rule-based supervision. The State Banking Act imposed explicit quantitative limits on bank borrowing,

[1] Senior Federal Reserve officials have expressed divergent views on this question. Governor Barr (2025) argues that "institutional knowledge and experience-based judgment are critical for supervisors' ability to manage these responsibilities," while Vice Chair Bowman (2025) contends that "supervision focused on material financial risks is inherently more effective and efficient" and warns that "overemphasis on process and supervisory box-checking can be a distraction from the core purpose of supervision."

requiring commissioner approval for borrowing beyond a bank's capital and surplus and capping pledged collateral at 150% of the amount borrowed. Breaches of these thresholds triggered mandatory corrective orders. However, the Act was silent regarding the *persistence* of interbank reliance, and no numerical threshold defined "habitual" status. The designation therefore rested entirely on examiner judgment about whether a bank's borrowing pattern reflected a sustained structural dependency rather than temporary liquidity management. By recording each bank's habitual-borrowing status annually, these examination reports offer a rare window into discretionary supervision operating alongside and distinct from statutory enforcement.

We construct several novel datasets to study this setting. To track bank behavior and supervisory assessments, we collect bank Call Reports from 1920 to 1933 and supplement these with state bank examination reports from 1922 to 1932, which record each bank's habitual borrower classification alongside other qualitative assessments. To characterize the examiners themselves, we link U.S. Census records on demographics, occupational history, and residential location to signatures in the examination reports, identifying individual examiners, their assignments, and their geographic reach for each bank-year observation. Finally, to assess long-run survival, we use the list of discontinued banks from the January 1935 edition of the Rand McNally Bankers' Directory to determine whether and when each bank failed during the Great Depression.

We begin by documenting the characteristics of the bank examiners themselves. In our setting, examiners were not distant bureaucrats but professionals with deep ties to the communities they supervised. Many had prior experience as bank officers and later returned to work in the financial sector, bringing firsthand knowledge of banking practices to their assessments. Their residential proximity to assigned banks, combined with repeated examinations of the same institutions, meant that oversight was conducted by individuals well positioned to apply experience-based judgment.

We next show that habitual borrowing was a durable feature of Virginia's banking landscape. When examiners introduced the designation in 1922, 70 of 312 banks (22.4%) were classified as habitual borrowers, and the share consistently hovered around 20% throughout the decade. Yet this aggregate stability masked substantial individual-level turnover: in any given year, roughly half of habitual banks transitioned out of the designation by the next examination, while new banks entered. These patterns indicate that once a bank adopted a funding model reliant on interbank borrowing, it was difficult to abandon. Habitual borrowers operated with distinct balance-sheet structures, relying more heavily on borrowed funds and holding different liquidity and investment positions. This persistence underscores the importance of examining how supervisory interventions

shaped bank behavior in the years leading up to the Great Depression.

Having established who the examiners were and what they observed, we evaluate how their monitoring of habitual borrowing affected bank stability. Our empirical strategy proceeds in three steps. First, we test whether observable balance-sheet metrics alone could predict a bank's habitual-borrower status, allowing us to distinguish rule-based threshold enforcement from genuine discretionary judgment. Second, we examine how classification as a habitual borrower influenced subsequent bank behavior, isolating the effects of the designation on funding decisions. Third, we test whether examiner-identified vulnerabilities had lasting consequences by comparing failure outcomes during the Great Depression.

The first two steps draw on bank balance sheet data from 1920 to 1928, a period in which Virginia's banking sector operated under relatively stable conditions and failure rates remained low. This window provides a clean empirical setting for studying how banks responded to habitual borrower classifications under normal operating conditions, before the cascading pressures of the Depression distorted bank behavior. The third step shifts to the crisis period, using habitual borrower status recorded in 1927 or 1928 as a pre-determined measure of examiner-identified vulnerability and examining whether that designation predicted failure outcomes from 1929 onward. Splitting the sample in this way — rather than pooling the full period — mitigates attrition bias, as incorporating failing banks into the baseline estimation would conflate the determinants of normal operating behavior with the predictors of failure, obscuring the causal relationship this paper seeks to identify.

To assess whether examiners were simply applying fixed numerical thresholds, we test how well observable balance-sheet characteristics predict a bank's habitual-borrower status. Across both linear probability and logit models, the explanatory power is extremely low, with R^2 values of about 0.07 even when restricting the sample to banks with positive borrowing. Although some standardized metrics are statistically associated with the designation, no combination of observable characteristics can mechanically reproduce the classification. This limited predictive power indicates that examiners were not enforcing simple rules but instead relied on judgment grounded in experience when assessing whether a bank's borrowing behavior warranted concern.

The habitual borrower designation had large and persistent effects on bank funding. In cross-sectional regressions around the initial 1922 classification, habitual borrowers reduced their reliance on interbank funding by 92.6% relative to non-habitual borrowers with positive borrowing. Over

the full sample period, panel regressions with bank and year fixed effects estimate a 66.8% decline in interbank borrowing, with some evidence that flagged banks partially offset the reduction by increasing deposit funding. Despite these substantial shifts in funding structure, bank profitability did not change, suggesting that the designation constrained borrowing practices without impairing overall performance.

These discretionary assessments also carried predictive power for long-run bank stability. Banks classified as habitual borrowers in 1927 or 1928 were approximately twice as likely to fail during the Great Depression, and conditional on failing, survived roughly 46% less time than non-habitual borrowers. This pattern intensified as the crisis deepened, with the sharpest divergence in failure rates emerging in 1931. These results indicate that examiner judgment successfully identified systemic vulnerabilities that standardized balance-sheet metrics alone would likely have missed. These findings are robust to excluding Richmond-headquartered banks with access to Federal Reserve credit, to controlling for examiner fixed effects, and to alternative panel specifications without bank fixed effects.

Our findings speak directly to ongoing debates about the optimal design of bank supervision and its implementation. In the United States, the three federal banking agencies collectively employ more than 7,000 bank examiners and spend over $3 billion annually on supervisory activities.[2] The scale of these investments makes the question of how supervision should be designed not merely academic but consequential for public resources and financial stability alike. We show that discretionary supervisory judgments contained meaningful predictive information about long-run bank stability that no combination of standardized balance-sheet metrics could replicate. Moreover, this predictive power was concentrated among banks examined by the most experienced examiners: habitual designations made by examiners with five or more years of tenure predicted failure at more than twice the rate of those made by less experienced colleagues, consistent with supervisory human capital improving the quality of discretionary judgment. These findings suggest that examiner expertise, though inherently subjective, can play a vital role in identifying systemic risks, and that sustained investment in supervisory human capital is essential for discretion-based oversight to function effectively.

This paper contributes to several strands of literature in financial intermediation. First, our paper relates to the growing literature on bank supervision and its effects on financial stability (see

[2]See Board of Governors of the Federal Reserve System Annual Report (2024) and Office of the Comptroller of the Currency Annual Report (2024).

Hirtle and Kovner, 2022, for a recent survey). This literature is constrained by the confidentiality of the examination process. To address this, prior studies have exploited variation in supervisory attention, such as the frequency of inspections, the closure of regulatory offices, or access to confidential supervisory information. These studies find that supervision reduces risk-taking and failures (Peek, Rosengren, and Tootell, 1999; Kandrac and Schlusche, 2021; Hirtle, Kovner, and Plosser, 2020; Correia et al., 2025), improves bank performance (Barth et al., 2013), and positively affects lending and the real economy (Agarwal et al., 2014; Granja and Leuz, 2024). However, existing proxies for supervisory intensity capture the quantity of oversight but not its quality, and cannot distinguish rule-based enforcement from discretionary judgment. Our analysis contributes by directly observing the content of discretionary examiner assessments and documenting the individuals who produced them.

Second, we add to the research on banking panics during the Great Depression. Many studies examine the causes of widespread bank failures, finding that bank runs reflected a rational and predictable process of market discipline. Depositors withdrew funds from banks with balance sheet characteristics indicating fundamental weaknesses (White, 1984; Calomiris and Mason, 1997; Calomiris and Mason, 2003a; Calomiris and Mason, 2003b). Other studies focus on the role of monetary policy in Depression-era bank runs (Carlson et al., 2011; Richardson and Troost, 2009) or how regulations and supervision affected failures (Mitchener, 2005; Jaremski and Wheelock, 2020; Quincy and Xu, 2025). Lastly, several studies show that stigma contributed to the severity of banking panics during this period (Anbil, 2018; Anbil and Vossmeyer, 2021). We contribute to this literature by examining how discretionary examiner judgment shaped bank stability leading into the Great Depression.

Third, we contribute to a growing literature that leverages the richness of bank examination records to study financial intermediation and supervision. Calomiris and Carlson (2016, 2017, 2022, 2023) draw on National Banking Era examination reports to document the examiner role in monitoring and information production, showing that examiner expertise shaped corporate governance, interbank network structure, and the disciplining of banks before and after financial crises. Other works use examination records to study a range of related questions such as interbank network topology (Anderson, Paddrik, and Wang, 2019), shareholder liability and moral hazard (Anderson, Barth, and Choi, 2018), and shadow banking (Anderson, Erol, and Ordoñez, 2020, 2023). Our paper builds on this tradition but shifts the focus from documenting what examiners observed to evaluating whether their discretionary judgments predicted financial vulnerability

and influenced bank behavior in the years before the Great Depression.

The remainder of the paper is organized as follows. Section 2 presents institutional background on bank examinations and supervision during the 1920s. Section 3 examines the role of bank examiners, documenting their backgrounds, assignment patterns, and influence on the supervisory process. Section 4 describes data and summary statistics on the sample of Virginia state banks. Section 5 presents our main empirical results, covering the determinants of habitual borrower classification, the effects of discretionary supervision on bank behavior, and the relationship between habitual borrowing and banking stability during the Great Depression. Section 6 concludes.

2 Background and Institutional Details

This section examines two key aspects of Virginia's banking sector in the 1920s and 1930s: (1) the growing overreliance on interbank borrowing, which supervisors viewed as a sign of weak fundamentals, and (2) the supervisory examination system, which relied on examiner judgment to identify and address emerging risks.

2.1 Overdependence on Interbank Borrowing

During the National Banking Era, the banking system experienced seasonal spikes in loan interest rates and periodic banking panics. Increased demand from the agricultural sector for currency and credit during the spring planting and fall crop-moving seasons pushed interest rates up and reserve-to-deposit ratios down, weakening the banking system and causing money supply contractions when demand for liquidity was highest (Kemmerer, 1910).

The interbank borrowing system developed as a means for banks to accommodate these seasonal pressures. Rural banks relied on correspondents in financial centers to fill funding gaps through interbank deposit balances and direct borrowing. When deposit outflows intensified, banks first drew down their correspondent balances and then turned to short-term borrowing. Maintaining a credit line required compensating balances of roughly 20–25% of seasonal borrowing. Correspondents paid about 2% interest on these balances, while rural banks paid around 6% to borrow funds. Many banks preferred borrowing to liquidating loans or selling securities at a loss (Redenius and Weiman, 2020).

Interbank borrowing became an increasingly important funding source for Virginia state banks in the early 1920s, and several factors contributed to its sustained use. Banks borrowed to invest

in higher-yielding assets, using funds from correspondents to purchase Treasury securities and make loans at more attractive rates. Borrowing also helped banks support respondent institutions and local customers during the prolonged economic distress following the collapse of agricultural markets. In addition, banks relied on borrowed funds to manage deposit withdrawals and maintain adequate cash positions during periods of liquidity strain.

Interbank borrowing took the form of "notes and bills rediscounted" and "bills payable." While both instruments were widely used, reliance on bills payable signaled financial weakness because banks resorted to them when they could not raise sufficient cash by rediscounting eligible commercial paper (Gruchy, 1937). Interbank borrowing grew rapidly among Virginia state banks between 1917 and 1921. The number of banks reporting positive interbank borrowing rose from 71 (25%) in 1917 to 186 (56%) in 1921. Aggregate borrowing increased from roughly $1.7 billion to $14 billion, and the ratio of interbank borrowing to bank capital rose from 12% to 56%. This expansion reflected the increasing use of interbank credit as a liquidity management tool.

By the early 1920s, regulators became concerned that many banks were borrowing not just seasonally but continuously. They viewed these frequent borrowers – formally labeled *habitual borrowers* – as a signal of weak fundamentals. Regulators were especially alarmed by the growing use of bills payable. In response, the State Banking Department issued guidance emphasizing a greater "reluctance to borrow" and, beginning in 1922, instructed examiners to record whether borrowing banks should be classified as *habitual borrowers*.

2.2 Rules and Discretion in Virginia State Bank Supervision

Virginia's supervisory framework combined formal, rule-based oversight with examiner discretion. The statutory component, codified in the Virginia Bank Act and enforced by the commissioner of banking, set explicit legal limits on interbank borrowing, among other areas. Bank examiners exercised qualitative judgment during on-site inspections, a practice that became increasingly important as supervisors confronted behaviors not easily captured by statutory ratios (Gruchy, 1937).[3]

An official examination system, introduced in 1910, generated reports far richer than the publicly available Call Reports. Each report contained three sections: a statement of assets

[3]The rule-based component was also evolving on the entry side. Virginia's 1928 bank act amendment gave the Commissioner of Banking discretionary authority to limit new bank charters, and capital requirements for state-chartered banks were in flux nationally during this period (Quincy and Xu, 2025). These rule changes primarily affected banks formed after the onset of the Great Depression and are beyond the scope our analysis.

and liabilities, detail on the distribution and quality of loans, securities, and cash items, and examiners' qualitative assessments of management, loan practices, and overall condition. Alongside ratio-based indicators, examiners applied expert judgment to loan quality, collateral adequacy, and managerial competence.

The most relevant component for our analysis concerns interbank borrowing. The Bank Act imposed clear ceilings: borrowings could not exceed a bank's capital and surplus without approval, and pledged collateral could not exceed 150% of the amount borrowed. Breaches triggered mandatory corrective orders from the commissioner. Yet regulators increasingly recognized that compliance with these limits did not necessarily indicate financial soundness. A bank could satisfy every statutory threshold while remaining fragile if it persistently relied on short-term borrowing to fund operations.

In response, beginning in 1922, examiners were instructed to classify banks as *habitual borrowers* when borrowing occurred with unusual frequency or persistence. Regulators viewed continuous borrowing as a warning sign: it allowed inefficient banks to expand credit and mask underlying insolvency, enabled weak institutions to offset chronic deposit withdrawals, and often reflected an inability to generate liquidity through higher-quality assets (Carlson, 2023). The habitual-borrower designation thus targeted the *pattern* rather than the *amount* of borrowing, capturing risks that statutory ratios alone could not.

Figure 3 plots the distribution of the borrowing-to-capital ratio separately for habitual and non-habitual borrowers among the 127 banks with positive interbank borrowing in 1922. If examiners had applied the statutory ceiling mechanically, habitual borrowers would cluster above the 100% threshold while non-habitual borrowers fell below it. Instead, the two distributions overlap substantially: non-habitual borrowers span the full range of intensities, including many well above 100%, while a large share of habitual borrowers fall below the threshold. No single cutoff separates the two groups, confirming that the designation captured patterns the rule-based ceiling alone did not.[4]

The effectiveness of this system was constrained by an enforcement gap between its rule-based

[4]The borrowing-to-capital ratio is an imperfect proxy for the statutory measure, which binds on borrowing relative to capital *and* surplus. Because the surplus line in the Call Reports bundles accumulated surplus with undivided profits, the true regulatory denominator is difficult to measure precisely and explains some of the apparent non-compliers. Appendix Figure A.6 reproduces the histogram using the combined capital-plus-surplus and undivided profits denominator and confirms that the vast majority of banks fall below 100% under this alternative. We use the simpler borrowing-to-capital ratio throughout the paper.

and discretionary components. After each examination, the State Banking Department issued directives where statutory provisions had been breached and non-binding recommendations where they had not. Habitual borrowing fell into the latter category: because the Bank Act did not explicitly prohibit persistent borrowing, examiners' assessments carried the force of suggestions rather than mandates.[5] Whether these qualitative evaluations influenced bank behavior or predicted subsequent distress is the empirical question this paper addresses.

2.3 Bank Failures during the Great Depression

The Great Depression triggered the most catastrophic collapse of the American banking system in the nation's history. Of the roughly 24,000 banking institutions operating nationally in January 1929, only about 14,000 remained when President Roosevelt declared a national banking holiday in March 1933. The crisis did not strike all at once: failures started with the gradual attrition of the late 1920s, concentrated among small rural banks. State-chartered banks bore the heaviest burden, accounting for roughly 80% of all failures nationally.

Virginia's state banking system expanded steadily in the decade before the Depression, mirroring national trends. In 1920, the state's 338 state-chartered banks held total assets of approximately $204 million, with deposits of $143 million and loans of $173 million. Over the following nine years, total assets rose 40% to $285 million, deposits grew 44% to $206 million, and loans increased 15% to $199 million. As shown in Figure 1, the number of banks declined modestly from 338 in 1920 to 315 in 1929, reflecting gradual consolidation rather than distress. In 1929, only 11 state banks and 1 national bank failed, a rate consistent with ordinary business attrition. This pre-crisis stability makes Virginia bank data from 1920 to 1928 a clean setting for studying how banks responded to supervisory designation under normal operating conditions.

The Depression reversed this trajectory sharply. Total assets among Virginia state-chartered banks fell 36% from 1929 to 1933, loans contracted by nearly half, and deposits shrank by 33%. Borrowed funds collapsed from $15 million in 1929 to just $154,000 by 1935, as surviving banks retreated from interbank funding altogether. As Figure 1 shows, the number of operating banks declined sharply after 1929, falling from 315 to just 195 by 1935. By 1935, only 327 of Virginia's original 474 institutions remained, a decline of 31%. Given the sharp decline of Virginia's state-chartered banks beginning in 1929, employing 1928 as the cutoff for studying the effects of

[5]This two-tier architecture closely mirrors modern prudential supervision, which similarly combines binding quantitative requirements with qualitative assessments conducted through supervisory review processes, such as the Comprehensive Capital Analysis and Review (CCAR) in the United States.

discretionary supervision on bank activity mitigates attrition bias: incorporating failing banks into the baseline estimation would conflate the determinants of normal behavior with the predictors of failure (Correia, Luck, and Verner, 2025).

3 The Role of Bank Examiners

In order to understand the effectiveness of discretionary oversight, we need to examine who conducted these examinations. The quality of bank examinations depends not only on the design of supervisory tools but also on the expertise and judgment of the people who wield them. As Gruchy (1937, pp. 275–276) emphasized, "a well-trained, competent organization is essential" for conducting state bank examinations, and "examiners of sufficient experience and training must be employed." This concern with examiner human capital remains salient today.[6] We identify all 22 examiners who served in Virginia between 1920 and 1932 and reconstruct their professional backgrounds, assignment patterns, and supervisory decisions using detailed census data. These data allow us to move beyond the "black box" of supervision and examine whether the people conducting oversight had the expertise and institutional knowledge to exercise meaningful judgment.

3.1 Who Were the Examiners?

In total, 22 individuals served as state bank examiners in Virginia between 1920 and 1932, under the leadership of two chief examiners: Fitzhugh Briggs Richardson (1919–1922) and Myron Edison Bristow (1923–1935).[7] The average number of examiners per year was ten, rising from six in 1920 to twelve in 1932 (Figure 4). This modest expansion likely reflected both the growing complexity of the state banking system in the 1920s and the surge in bank failures during the early years of the Great Depression. It may also have been partly driven by the department's shift to assigning multiple examiners per bank.

Next, we document the demographic characteristics of Virginia bank examiners during this period. The average age of an examiner was approximately 40, ranging from 26 to 51 (Figure 5, Panel (a)). This age distribution remained relatively stable throughout time. In terms of professional backgrounds, Panel (b) of Figure 5 traces the occupations of examiners using census

[6] Recent reductions in supervisory staff at the Federal Reserve Board have renewed debate over the importance of institutional knowledge in bank oversight. See Andrew Ackerman, "Federal Reserve to Reduce Bank-Supervision Staff by 30%," *Wall Street Journal*, March 10, 2025.

[7] See Figure A.1 for their appearance in the *Southern Banker* magazine.

data. In 1920, about half had worked in the banking sector, often as presidents (CEOs) or cashiers (CFOs), while others held administrative or clerical roles. By 1930, about half of the examiners were still serving in that capacity, and many of the rest had taken on bank officer roles. Panels C and D follow their careers into the 1940 and 1950 censuses. In other words, many examiners had previously served as bank managers or went on to do so after their tenure, giving them a strong grasp of bank management and sound banking practices. Importantly, examiners were full-time, salaried employees of the State Banking Department, and their career trajectories suggest that banking and examination were sequential rather than simultaneous roles. A large fraction remained in banking, suggesting that the examiner role was part of a broader professional trajectory rather than an isolated public service position. Finally, we calculate the physical distance between examiners' residences and the banks they examined. The average distance was 67 miles, with some located in the same town and others as far as 366 miles away. This proximity likely fostered repeated interactions and a deeper understanding of local bank conditions.

3.2 How Did Examiners Shape Supervision?

In this subsection, we document how bank examiners interacted with and shaped the supervision process in practice. First, we analyze examiner team structures. In Figure 6, we plot the percentage of banks that were reviewed by a given number of examiners during the examinations.While most examinations were conducted by a single lead examiner in 1922, this began to shift over time. By 1926, 33% of banks were inspected by teams of two or more examiners, and by 1932, that share had risen to 67%. This structural change likely reflected the Virginia state banking department's evolving view that supervisory effectiveness could be improved through collaborative assessment.

We next turn to the assignment patterns of habitual borrower status. On average, each examiner handled 48 examinations in 1922 (median of 54), a number that dropped to 34 examinations in 1932 (median of 43.5), in part due to the increased examiner count. Among examiners who have completed at least 50 examinations during the sample period, the percentage of banks flagged as habitual ranged from 6% to 32%. While some examiners were more likely to designate banks as habitual borrowers, the assignment patterns remain relatively consistent across years, with within-examiner changes typically ranging from 1% to 4%.

Figure 7 plots the geographic distribution of habitual borrower banks in 1922 and 1929, this time coded by the lead examiner responsible for each bank. We confirm that examiners tended to operate in relatively small geographic clusters and that the incidence of habitual borrower designations

varied only modestly across examiners. Taken together, these patterns underscore the central role of examiner judgment in the supervisory process. Both the intensity and consistency of habitual borrower designations were shaped by the individual examiners conducting the assessments.

These findings are important not only for understanding the efficacy of discretionary supervision but also for underscoring the role of expertise in supporting supervisory judgment. Virginia's bank examiners were experienced banking practitioners embedded in local communities, and their familiarity with bank management informed the qualitative assessments they produced. The evidence presented in this section raises the broader question of whether discretionary oversight can function effectively without sustained investment in supervisory human capital.

4 Data and Descriptive Statistics

4.1 Data Sources

We collect information on Virginia state banks from three sources. First, we use bank Call Reports from 1917 to 1935. The state banking department required banks to submit a report of condition covering basic balance sheet information four times a year and published the June balance sheet in its annual report. After submitting their balance sheets to regulators, banks were also required to publish select line items in a local newspaper, allowing depositors to monitor their condition. A key advantage of the Call Report is that balance sheets were collected for all banks at the same point in time, helping control for seasonal or other time-related factors. Second, we collect Virginia state bank examination reports from 1922 to 1932. These reports were written twice a year by field examiners hired by the Virginia state banking department. We collect and codify the latest report available each year. Lastly, we use the January 1935 edition of the *Rand McNally Bankers' Directory* to determine bank outcomes following the Great Depression. We use the list of discontinued banks to identify whether a bank failed or merged with another institution to avoid failure.

We restrict our baseline sample to state-chartered banks that were not members of the Federal Reserve System. Federal Reserve member banks had direct access to the Federal Reserve's discount window, providing an alternative liquidity facility that fundamentally differentiates their borrowing behavior from that of non-member banks. Accordingly, we exclude the 13 FRB member banks from all analysis. Our sample therefore consists exclusively of non-member state banks subject to the Virginia State Banking Department's supervision.

To identify individual bank examiners, we begin with the directory of examiners listed in the *Rand McNally Bankers' Directory*, which reported the names of state supervisory personnel. We then extract examiner names and titles directly from the examination reports by matching examiner signatures to the names listed in the directory. This allows us to track examiner assignments over time and identify the lead examiner for each bank-year observation. Finally, we collect demographic information (age, hometown, and employment history) for all examiners using the decennial U.S. Census from 1920 to 1950, accessed through Ancestry.com.

Our combined dataset covers 418 unique non-member state banks and 4,509 bank-year observations between 1920 and 1935. Habitual borrower status, drawn from the examination reports, is available for 1922 to 1932. We use the pre-crisis window of 1922 to 1928 to study how banks responded to discretionary supervision during normal operating conditions, and examine banking stability outcomes beginning in 1929, which marks the onset of the Great Depression.

4.2 Habitual Borrowing in the 1920s

Habitual borrower status was recorded by Virginia bank examiners starting in the 1922 examination reports. When supervisory attention was first introduced, 70 of 312 banks (22.4%) were classified as habitual borrowers (Figure 8). The number and fraction of habitual borrower banks declined significantly in the early years after the habitual borrower flag was introduced, reaching 47 banks (13.9%) by 1924. Notably, however, habitual borrowing did not completely disappear despite the enhanced scrutiny.

Figure 9 depicts the locations of habitual borrower banks in 1922 and 1932, the beginning and end of our examination report sample. We show that habitual borrowers are distributed statewide, with a few counties within the Southwest, Central, and Valley regions exhibiting slightly higher concentrations. While the absolute number of habitual borrowers declined from 70 to 39 banks during this period, we do not find notable geographic trends in habitual borrower status across counties. These facts imply that the habitual borrower designation was applied uniformly throughout the state.

Figure 10 illustrates the distribution of how often banks were flagged by examiners. The vast majority of state (non-member) banks in Virginia never became habitual borrowers, despite close to half of banks reporting positive interbank borrowing at least once during this decade. Among those flagged as habitual borrowers, 79 banks were designated only once, while 116 banks were classified as habitual borrowers on multiple occasions. More persistently, 32 banks were flagged by

examiners in more than half of the available examination reports, and Farmers and Merchants Bank of Timberville was classified as a habitual borrower every year except 1927.

4.3 Persistence of Habitual Borrower Status

Understanding the persistence of the habitual borrower designation is important for validating the discretion channel. If banks could precisely anticipate and target their own classification, for instance by adjusting borrowing just enough to avoid the designation in any given year, the label would reflect strategic behavior rather than genuine examiner judgment. We next investigate this possibility using observable habitual designation outcomes.

Figure 10, Panel (a) plots a histogram of the total number of years each bank was classified as a habitual borrower between 1922 and 1932. Panel (b) shows that roughly half of habitual borrowers in any given year were also classified as habitual in the prior year, indicating that banks moved in and out of the designation with substantial frequency. The absence of a clear upward trend over time suggests the label was not self-perpetuating: repeated classification reflected ongoing borrowing behavior rather than examiner inertia.

To formalize this analysis, we construct a transition matrix of habitual borrower status across adjacent years, pooling all bank-year pairs from 1923 to 1932.[8] Table 1 presents the results. Among banks classified as habitual borrowers in year $t-1$, 50.2% are re-classified as habitual in year t, while the remaining 49.8% exit the designation. The entry rate, that is, the probability that a bank not previously classified as habitual receives the designation, is 8.6%. The persistence ratio of 5.84 indicates that prior habitual status is a meaningful predictor of current designation. At the same time, the near-equal staying and exit rates rule out a purely mechanical process: roughly half of designated banks escape the label each year, confirming that examiners tracked actual borrowing behavior rather than perpetuating prior classifications. Across years, the staying rate ranges from 34.0% to 72.0% with no discernible trend, consistent with the year-over-year evidence in Panel (b) of Figure 10.

4.4 Descriptive Statistics

Table 2 presents summary statistics for key balance sheet characteristics of Virginia state banks over the 1922 to 1928 pre-crisis period. During this time, bank regulators and depositors commonly

[8]The study of transition matrices for categorical classifications has a long tradition in corporate finance, including Altman (1989) and Kaplan and Zingales (1997), among others.

evaluated liquidity, investment, and leverage metrics to assess bank soundness (Gruchy, 1937). Liquid assets include vault cash and reserves held in other banks, while investment refers to a bank's holdings of securities and longer-term loans.

Habitual borrower banks operated with substantially different balance sheet profiles. Importantly, they were far more leveraged: the average borrowing-to-capital ratio was 70.59% among habitual borrowers, compared with 23.22% for non-habitual banks. A similar pattern appears when scaling borrowing by deposits (37.29% versus 5.06%). These gaps are large and statistically significant and indicate that examiners correctly identified banks that relied heavily on interbank funding.

In terms of investment activity, habitual borrowers held considerably larger investment portfolios relative to their deposit base. Their average investment-to-deposits ratio was 249.29%, roughly double that of non-habitual banks (123.45%). At the same time, habitual borrowers exhibited lower equity-to-deposits ratios and modestly lower profitability, consistent with more aggressive balance sheet strategies supported by short-term funding rather than stronger capital buffers.

Liquidity positions are broadly similar across the two groups. Mean liquid assets to deposits differ only slightly (18.29% for non-habitual banks versus 17.83% for habitual banks) but habitual banks display greater dispersion in liquidity ratios, suggesting more variable liquidity management.

The descriptive statistics also highlight differences in borrowing reliance and supervisory exposure. Habitual borrowers were much more likely to report any interbank borrowing at all (80% versus 30%), reinforcing that these banks relied more consistently on correspondent credit lines. They were also examined by a slightly larger number of examiners on average, which is consistent with heightened supervisory attention to institutions exhibiting persistent reliance on borrowed funds.

Taken together, these patterns suggest that habitual borrower banks followed distinct funding and investment strategies prior to the Great Depression, relying heavily on interbank credit to support larger investment portfolios despite holding weaker capital positions. This combination of high leverage and substantial borrowing made them more exposed to funding disruptions during periods of financial stress.

5 Main Results

This section presents our empirical analysis in three parts. First, we examine the determinants of interbank borrowing and habitual borrower classification. Using balance sheet data from the Call Reports, we ask what observable characteristics predict whether a bank borrows from correspondents and, among borrowers, what distinguishes those flagged as habitual. This analysis establishes that the habitual borrower designation was not based on a mechanical threshold but instead incorporated qualitative examiner judgment.

Second, we study how discretionary supervision influenced bank behavior. We exploit the unexpected introduction of the habitual borrower classification in 1922 as a quasi-experimental shock and estimate cross-sectional regressions comparing flagged banks to unflagged borrowers in the years immediately following. We then extend the analysis to the full 1922 to 1928 pre-crisis panel, incorporating bank and year fixed effects to assess whether the effects of supervisory scrutiny persisted over time and whether banks adjusted other dimensions of their balance sheets in response to the designation.

Third, we evaluate whether habitual borrowing predicted bank failure during the Great Depression. Using both semi-parametric Cox proportional hazards models and parametric accelerated failure time specifications, we test whether banks classified as habitual borrowers in 1927 and 1928 faced elevated failure risk during the subsequent crisis beginning in 1929, conditional on standard balance sheet characteristics. This analysis speaks directly to whether examiner judgment identified systemic vulnerabilities that standardized metrics alone would have missed.

5.1 Determinants of Interbank Borrowing and Habitual Status

Banks do not become habitual borrowers at random. As documented in Section 4, a substantial share of Virginia state banks relied on interbank borrowing throughout our sample period, and a persistent subset were classified as habitual borrowers by examiners. It is therefore important to understand what observable characteristics are associated with borrowing activity, and, by extension, what signals examiners may have used when assessing habitual borrowing behavior. We examine these questions using balance sheet information available from the Call Reports.

First, we consider what factors predict whether a bank engages in interbank borrowing at all. In Virginia's agricultural economy, borrowed funds typically arose from liquidity shortfalls: banks heavily exposed to seasonal lending cycles periodically drew on correspondent balances to bridge

gaps between deposit inflows and loan demand. However, individual banks' reliance on borrowed funds also reflected their own liquidity management practices and portfolio exposures. To address this question, we estimate the following linear probability model (LPM):

$$\mathbb{1}_{Brw>0,it} = \alpha_i + \gamma_t + \mathbf{X}'_{i,t-1}\boldsymbol{\beta} + \varepsilon_{it} \tag{1}$$

where $\mathbb{1}_{Brw>0,it}$ equals one if bank i reports positive interbank borrowing in year t, α_i denotes bank fixed effects that absorb time-invariant bank characteristics, γ_t denotes year fixed effects that control for aggregate macroeconomic trends, and $\mathbf{X}_{i,t-1}$ is a vector of lagged balance sheet variables: log total assets, investment-to-deposits ratio, equity-to-deposits ratio, liquid assets-to-deposits ratio, and return on assets. All covariates are lagged one year to mitigate simultaneity concerns, as contemporaneous balance sheet positions mechanically reflect borrowing activity within the same period. We additionally complement the LPM with a pooled logit specification:

$$\Pr(\mathbb{1}_{Brw>0,it} = 1) = \Lambda(\gamma_t + \mathbf{X}'_{i,t-1}\boldsymbol{\beta} + \delta \ln(\text{Age}_{it})) \tag{2}$$

where $\Lambda(\cdot)$ is the logistic function and $\ln(\text{Age}_{it})$ proxies for time-invariant bank heterogeneity. The logit specification has the advantage of respecting the binary nature of the dependent variable, but cannot accommodate bank fixed effects due to the incidental parameters problem in short panels. Standard errors are clustered at the bank level in all regressions.

Table 3 reports the results. In columns (1) and (2), the LPM specification uncovers a positive and statistically significant (at the 10% level) relationship between bank size and the probability of borrowing, as well as a positive coefficient on the investment-to-deposits ratio that is statistically significant but economically negligible. More notably, liquid asset holdings enter with a negative and highly significant coefficient: banks with larger cash buffers relative to deposits are substantially less likely to access borrowed funds. This is consistent with the view that larger banks with lower cash reserves and higher loan balances were more likely to require interbank borrowing. The logit specification in column (2) additionally indicates that less profitable banks were significantly more likely to borrow. Importantly, other balance sheet variables such as equity-to-deposits, bank age, and return on assets do not predict borrowing behavior, suggesting that the decision to access borrowed funds is driven in large part by unobservable liquidity management practices and idiosyncratic risk exposures rather than by readily observable balance sheet characteristics alone.

We next turn to the more central question: among banks that borrow, what predicts habitual

borrower classification? We replace the dependent variable with an indicator for whether bank i is identified as a habitual borrower in year t and restrict the sample to bank-years with positive interbank borrowing. This conditioning isolates the intensive margin, that is, what distinguishes a habitual borrower from an occasional one, rather than conflating the extensive margin decision to borrow at all with the examiner's qualitative assessment of borrowing patterns. In the preferred LPM specification (column 3), low liquid asset holdings and a high borrowings-to-capital ratio are both significant predictors of habitual status. The logit estimates in column (4) additionally suggest that, among borrowers, smaller and less profitable banks are more likely to be flagged. This represents a reversal of the size coefficient from the borrowing regressions in columns (1) and (2), consistent with the shift to a conditional sample of active borrowers among whom smaller banks may be disproportionately reliant on interbank funding. Taking both specifications together, the consistent finding is that habitual borrowing behavior is directly tied to liquid asset holdings and the level of borrowing relative to capital, but not to investment exposure or equity capitalization per se. At the same time, the R-squared in column (3) remains modest at 0.084, indicating that observable balance sheet characteristics explain only a small share of the variation in habitual borrower status.

Overall, these results confirm that the habitual borrower classification was not based on a mechanical, rule-based threshold applied to any single balance sheet ratio. While we find natural correlations between habitual status and both liquidity buffers and borrowing intensity, the low explanatory power of the models implies that the designation incorporated qualitative assessments beyond what Call Report data alone can capture. Not all frequent borrowers were classified as habitual, and not all banks with thin liquidity buffers received the designation. This is consistent with a supervisory process that relied substantially on examiner judgment, a role we study directly in the sections that follow.

5.2 Impact of Discretionary Supervision on Bank Behavior

We study how discretionary supervision influences bank behavior by analyzing the inclusion of habitual borrowing in examination reports. Using annual data on each bank's habitual borrower status from 1922 to 1928, we directly quantify the impact of supervision on interbank borrowing and other balance sheet outcomes. Habitual borrowing was recorded for the first time in the 1922 examination reports. As this regulatory shift was unexpected and quickly implemented, it provides a quasi-experimental setting to study the causal effect of discretionary supervision. In the first part of our analysis, we estimate a cross-sectional regression comparing banks that

were flagged as habitual borrowers to non-habitual borrowers with positive levels of interbank borrowing. This allows us to isolate the effect of habitual borrower designation among banks that share similar funding models. If supervisory scrutiny effectively discouraged reliance on interbank borrowing, we would expect to see a relative decline in borrowing levels among habitual borrower banks following their classification. Beyond interbank borrowing, we also examine whether flagged banks adjusted other aspects of their balance sheets, including deposits, investment, and liquid assets, in response to the designation. This analysis provides insight into the extent to which supervisory attention shaped bank stability in Virginia during this period.

Appendix Table A.1 reports summary statistics for habitual and non-habitual borrower banks in 1922. Similar to the baseline statistics for the full sample, habitual borrowers exhibit higher investment, equity capitalization, and borrowing levels compared to non-habitual borrowers. Notably, the average borrowing to total capital ratio is over four times higher for habitual borrowers in 1922 (87.0% vs. 18.9%), a difference that narrows somewhat in the full sample (70.61% vs. 25.56%). Habitual borrowers also have lower liquid assets relative to deposits on average in 1922 (14.4% vs. 21.0%), whereas this difference disappears in the full sample (18.2% vs. 17.6%). Comparing the two tables highlights two facts: (a) habitual borrowers relied heavily on interbank borrowing to support elevated investment levels, and (b) despite reductions in borrowing following the introduction of the habitual borrower flag, many banks continued to be classified as habitual borrowers throughout the decade. On balance, the distinct funding and investment approaches of these two groups underscore the importance of leveraging an exogenous shift in supervisory scrutiny to evaluate its causal effects.

We estimate the following regression:

$$Y_i = \alpha + \beta \text{Habitual}_i + X_i'\gamma + \epsilon_t \tag{3}$$

where Y_i represents the percent change in the outcome variable of interest (interbank borrowing, total deposits, total equity, total investment, total liquid assets) or the return on assets for bank i. Habitual_i is a binary indicator equal to 1 if the bank was classified as a habitual borrower in 1922 and 0 otherwise, and X_i is a vector of 1922 bank characteristics (borrowing to capital ratio, investment to deposits ratio, liquid assets to deposits ratio, log total assets, and bank age) included to account for potential confounding factors. The coefficient β captures the estimated effect of habitual borrower designation on the outcome variable.

Table 4 presents the estimation results. We find that the habitual borrower designation in 1922 led to a substantial decrease in interbank borrowing among treated banks relative to control banks, as indicated by the negative and statistically significant coefficient of -2.81 on the habitual borrower dummy in column (1). This suggests that habitual borrower designation imposed economically meaningful constraints on banks' ability and willingness to borrow. Columns (2) to (4) examine the broader impact of supervision on balance sheet adjustments. Habitual borrower status decreased total deposits by 8.3%, implying meaningful contractions in other funding sources. In terms of asset composition, we find further evidence of supervisory constraints affecting bank operations; investment decreased by 8.5%, although we do not find statistically significant changes in liquid assets. There is also no change in bank profitability. Taken together, these findings indicate that supervision affected multiple aspects of bank operations in a contractionary manner, extending beyond interbank borrowing to influence liability structure and asset composition.

Second, we assess the impact of supervision by estimating a panel regression with bank and year fixed effects over the period from 1922 to 1928, restricting the sample to the pre-crisis years to isolate the effects of supervisory scrutiny under normal operating conditions. We examine failure outcomes separately in Section 5.3. If supervision had a persistent effect, we would expect banks to reduce interbank borrowing following their classification as habitual borrowers. Additionally, we may observe adjustments in liquidity management or capital levels in response to supervisory scrutiny.

We estimate the following regression:

$$Y_{it} = \alpha + \beta \text{Habitual}_{it} + X'_{it}\gamma + \delta_i + \lambda_t + \epsilon_{it} \tag{4}$$

where Y_{it} represents the financial outcome of interest for bank i in year t, such as interbank borrowing, liabilities, or asset composition. The key independent variable, Habitual_{it}, is an indicator for whether the bank was classified as a habitual borrower in year t. The vector X_{it} includes time-varying bank-level controls, such as past borrowing intensity, liquidity ratios, and capital structure. Bank fixed effects (δ_i) account for time-invariant heterogeneity across banks, while year fixed effects (λ_t) control for statewide macroeconomic conditions. Standard errors are clustered at the bank level to account for serial correlation in borrowing behavior over time.

Table 5 presents the estimation results from the panel regression over the 1922–1928 pre-crisis

period. In line with the cross-sectional findings around the first introduction in 1922, column (1) confirms that banks classified as habitual borrowers experienced a significant and persistent decline in interbank borrowing. The estimated coefficient of -2.318 is statistically significant at the 1% level, indicating that habitual borrower banks substantially reduced their interbank borrowing relative to non-habitual borrowers. This reinforces the view that supervisory scrutiny effectively constrained reliance on interbank funding even during the stable years before the Depression. Unlike the cross-sectional results, columns (2) through (4) show no significant effects on deposits, investment, or liquid asset holdings, suggesting that during normal operating conditions, the primary channel through which supervision operated was the direct reduction in borrowed funds. Column (5) indicates no changes in bank profitability. The absence of significant effects on other balance sheet dimensions during this pre-crisis window is consistent with banks adjusting their borrowing practices without fundamentally altering their broader business models.

Overall, we show that discretionary supervision led to a persistent and substantial decline in interbank borrowing during the pre-crisis period. The targeted nature of this effect suggests that supervisory scrutiny operated as a focused constraint on funding behavior rather than a broad drag on bank operations. Whether these supervisory interventions also carried predictive power for long-run bank stability is the question we turn to next.

Given our summary findings on the constant fraction of habitual borrowers throughout the study period, the regression results suggest that habitual borrower banks may have been borrowing less but at an elevated frequency. Separately, we cannot directly rule out the possibility that banks actively managed their books to reduce period-end balances of interbank borrowing, which might obscure true borrowing frequency. While the transmission of supervisory recommendations and balance sheet adjustments may have been slower in the 1920s, distinguishing between genuine reductions in borrowing frequency and short-term window-dressing remains a challenge and may partially explain the mixed results.

5.3 Habitual Borrowing and Banking Stability during the Great Depression

In this section, we evaluate whether habitual borrowers in the years leading up to the Great Depression were more likely to fail during the crisis. Appendix Figure A.5 provides initial visual evidence: bank failures were widespread regardless of habitual status prior to 1929 and geographically dispersed across the state, assuaging concerns that localized economic conditions were the primary driver of failures. Conditional on failure, the timing also varied considerably

across banks and regions (Panel B). We classify banks as habitual based on their designation in 1927 or 1928, the two pre-crisis years immediately before the Depression onset, and examine failure outcomes beginning in 1929. We use time-to-event models to assess the survival outcomes of habitual versus non-habitual borrowers, controlling for observable characteristics such as bank size, liquidity, capitalization, and leverage. Specifically, we build upon methodologies in prior works that investigate distress during historical banking crises (Calomiris and Mason, 2003b; Richardson and Troost, 2009).

5.3.1 Semi-Parametric Estimates

We begin with Cox proportional hazards regressions to assess whether habitual borrowing status between 1927 and 1928 predicts higher risk of bank failure during subsequent banking crises. The Cox model is semi-parametric, leaving the baseline hazard unspecified while estimating the multiplicative impact of covariates on failure risk.

Figure 11 presents Kaplan–Meier survival estimates, showing cumulative survival probabilities for habitual and non-habitual borrower banks. The results reveal that most divergence in failure rates occurs within the first two years of the analysis period. Habitual banks experienced significantly higher failure rates starting in 1931 ($t = 1$), with their survival probabilities dropping sharply relative to non-habitual banks. This early divergence underscores the vulnerability of banks dependent on interbank borrowing, confirming supervisory concerns that habitual borrowing was indicative of underlying financial weakness.

Table 6, columns (1) and (2), present the results of Cox proportional hazards models, where the outcome is the time until bank failure and the primary independent variable is habitual borrower status in 1927–1928. We control for time-varying measures of bank risk that could independently affect failure outcomes (log total assets, liquid asset-to-deposit ratio, equity-to-deposit ratio, and borrowing-to-capital ratio). Specifically, controlling for the borrowing-to-capital ratio allows us to isolate the incremental hazard associated with habitual borrowing status (higher borrowing frequency) conditional on the overall level of borrowing.

The results indicate that habitual borrowers faced significantly elevated failure risk, with an estimated hazard ratio of $e^{0.732} \approx 2.08$. This result is both economically and statistically significant, implying that habitual borrowers were about twice as likely to fail as their non-habitual borrower counterparts. Bank size negatively predicts failure, while the borrowing-to-capital ratio positively associates with failure risk. Liquidity and equity ratios do not show significant associations in this

specification, although the direction of their coefficients aligns with the economic intuition that higher liquidity and capitalization may have had protective benefits.

Column (2) extends the analysis by including county fixed effects. This specification is the most restrictive as it absorbs time-invariant county characteristics that could independently influence bank failure. The coefficient on habitual borrowing remains significant and rises markedly in magnitude, indicating that the detrimental effect of overreliance on interbank borrowing becomes clearer once persistent, county-level differences are accounted for.

5.3.2 Parametric Estimates

To assess robustness and explicitly model survival times, we estimate parametric survival models using a log-logistic accelerated failure time (AFT) specification. Unlike semi-parametric Cox models, parametric AFT models explicitly parameterize the distribution of survival times, providing direct interpretations of how covariates accelerate or decelerate the time to failure. Specifically, we utilize a log-logistic distribution, a standard choice in the literature given its flexibility in capturing increasing or decreasing hazard rates over time. The dependent variable is the log of the number of years until bank failure, and the key independent variable is habitual borrower status in either 1927 or 1928.

Table 6, columns (3) and (4), present the parametric results. Both specifications control for time-varying bank characteristics that may independently affect bank stability. In column (3), the coefficient on habitual borrower status is negative and statistically significant, implying that habitual borrowers experienced significantly shorter survival times. The exponential of this coefficient ($e^{-0.611} \approx 0.54$) suggests that habitual borrowers survived approximately 46% less time than non-habitual borrowers. Consistent with the semi-parametric results, larger banks tended to survive longer while banks with high borrowing levels experienced shorter survival times. Column (4) incorporates county fixed effects; we find that the negative effect of habitual borrowing on survival time remains robust, albeit being marginally weaker statistically.

Taken together, the semi-parametric Cox proportional hazards models and the parametric accelerated failure time models consistently show that habitual borrowers faced significantly higher failure risk during the Great Depression. Regardless of whether we flexibly estimate the baseline hazard or explicitly impose a parametric form on survival times, our results reveal that banks engaging in habitual borrowing were more prone to distress even after controlling for overall borrowing levels and standard balance sheet ratios. This finding underscores that supervisors

successfully identified a critical dimension of banking risk, namely borrowing frequency and persistence, that extends beyond traditional regulatory metrics and highlights the importance of qualitative supervisory assessments in detecting financial vulnerabilities.

5.3.3 Examiner Experience and the Quality of Discretionary Judgment

A natural question is whether the predictive power of the habitual designation reflects genuine examiner skill or the mechanical application of a label. If discretion matters, the designation should be more informative when made by examiners with greater expertise. Our setting is well suited to test this directly: we observe individual examiner identities, can measure their tenure in the department, and have sufficient variation in failure outcomes to detect differential predictive power. We proxy for examiner quality using the lead examiner's tenure, defined as the number of years since they first appear in our examination records.

As documented in Figure 5, Panel (b), examiners had varied career trajectories and entry points into the department. By 1927, ten lead examiners were active. The longest-tenured — Woodward, Charlton, Leake, and Ritchie — had served since 1922, when the habitual borrower designation was first introduced, giving them five to six years of experience applying the classification. The shortest-tenured, Justis and Short, had joined in 1927 and 1926 respectively and had at most two years of supervisory experience. The median tenure of 5 years thus effectively separates the original 1922 cohort, who developed and refined the habitual designation from its inception, from examiners who inherited it. We split banks by whether their lead examiner in the 1927 or 1928 examination had high tenure (5+ years) or low tenure, and re-estimate the Cox proportional hazards model separately for each subsample. Roughly two-thirds of banks in the survival sample (92 of 139) were examined by high-tenure examiners. Figure 12 presents Kaplan–Meier survival estimates for four groups defined by the interaction of habitual status and examiner tenure.

The results are reported in Table 7 and Figure 12. Among banks examined by high-tenure examiners, the habitual designation is a strong predictor of failure: the estimated hazard ratio of 2.33 implies that habitual borrowers were more than twice as likely to fail as non-habitual banks, conditional on the same set of observable balance sheet characteristics. Among banks examined by low-tenure examiners, the hazard ratio is smaller and statistically insignificant, though the direction is consistent. The Kaplan–Meier estimates in Figure 12 reinforce this pattern: habitual banks examined by experienced examiners experienced the sharpest decline in survival probability, with the gap opening early in the crisis. Despite a smaller sample, the concentration of predictive

power among experienced examiners is consistent with examiner human capital improving the quality of discretionary assessments, and suggests that the habitual borrower designation was not a mechanical label but reflected genuine supervisory judgment that strengthened with experience.

5.4 Robustness and Validation Tests

This section provides additional robustness and validation tests around our main results on bank behavior and financial stability during the Depression.

5.4.1 Excluding Richmond-Headquartered Banks

Richmond was home to the Federal Reserve Bank of the Fifth District, giving banks there access to discount window credit on different terms than state-chartered banks elsewhere in Virginia, and potentially subjecting them to an overlapping layer of Federal Reserve oversight. If Richmond banks adjusted borrowing for reasons unrelated to the designation, or if the designation was applied differently there, their inclusion could bias the estimates. Table A.2 reports results excluding these banks. The cross-sectional coefficient on habitual status remains negative and statistically significant in Panel A, and the panel results in Panel B are similarly unchanged, with the significant negative effect on borrowing preserved and null effects on other balance sheet outcomes maintained throughout the pre-crisis window.

5.4.2 Examiner Fixed Effects

Examiners differed substantially in their designation rates, raising the concern that the habitual coefficient captures examiner-specific classification tendencies rather than the bank's behavioral response to supervision. If stricter examiners were systematically assigned to banks that would have adjusted behavior differently in any case, the baseline estimates would conflate the two. We add fixed effects for each bank's primary examiner to both specifications and report results in Table A.3. In the cross-section (Panel A), identification comes from within-examiner variation among 1922 borrowers. In the panel (Panel B), a time-varying examiner fixed effect is absorbed alongside bank and year fixed effects, which is feasible because 56% of banks changed their primary examiner at least once between 1922 and 1928. The habitual coefficient remains negative and statistically significant in the borrowing column across both specifications, with other outcomes unchanged.

5.4.3 Panel Without Bank Fixed Effects

Because habitual status is highly persistent (the annual staying rate exceeds 50%), bank fixed effects are nearly collinear with the habit indicator, leaving limited within-bank variation for identification. Table A.4 reports the panel specification retaining year fixed effects but omitting bank fixed effects, so that identification draws on cross-sectional differences across banks. The coefficient on habitual status is -4.57, larger in magnitude than the bank-FE estimate in Table 5, as expected when between-bank variation is included. All four other outcomes remain statistically indistinguishable from zero. That the bank-FE estimate survives despite the tighter identification, and the no-bank-FE estimate is larger rather than smaller, is inconsistent with a story in which bank fixed effects are masking the effect.

6 Conclusion

A fundamental tension in banking supervision is whether oversight should rely on standardized, rule-based metrics or on the professional judgment of examiners. Recent policy shifts have favored quantifiable measures of risk, arguing that examiner discretion introduces subjectivity and inconsistency. Yet there is limited empirical evidence to inform this debate, in large part because supervisory assessments are rarely observable to researchers.

This paper addresses this gap using newly digitized bank examination reports from Virginia in the 1920s, a setting that offers two distinct advantages. First, the reports provide direct, examiner-level detail on supervisory assessments, allowing us to observe discretion in action rather than relying on coarse proxies. Second, the period encompasses both the introduction of discretionary examiner assessments and the onset of the Great Depression, a systemic crisis of known severity. The institutional environment, with state-chartered banks operating under a single supervisory authority, is simple enough to isolate the effects of examiner judgment without the confounding complexity of modern regulatory frameworks. We find that discretion-based scrutiny of interbank borrowing curtailed short-term borrowing and that banks that remained habitual borrowers were more likely to fail during the crisis. Examiners identified vulnerabilities that balance sheet ratios alone did not capture.

Our documentation of examiner backgrounds and career trajectories speaks to a broader question about the human capital of supervision. The Virginia examiners were not career bureaucrats but experienced banking professionals with direct knowledge of bank management.

Their geographic proximity to assigned banks and repeated interactions fostered institutional familiarity that informed their qualitative assessments. These findings suggest that the effectiveness of discretionary supervision depends critically on the expertise and professional backgrounds of the individuals conducting it. At a time when the size, training, and composition of the examiner workforce is under active scrutiny, our results highlight that investing in supervisory human capital may be as consequential as the design of supervisory rules themselves.

More broadly, our results point to a complementarity between rules and discretion rather than a strict trade-off. Standardized metrics provide consistency and transparency, but they cannot fully substitute for the judgment of trained examiners who observe bank operations firsthand. Historical settings with modern institutional features offer a productive laboratory for studying these questions, and future research could examine how examiner characteristics shape supervisory outcomes and how the balance between rules and judgment should evolve alongside the financial system.

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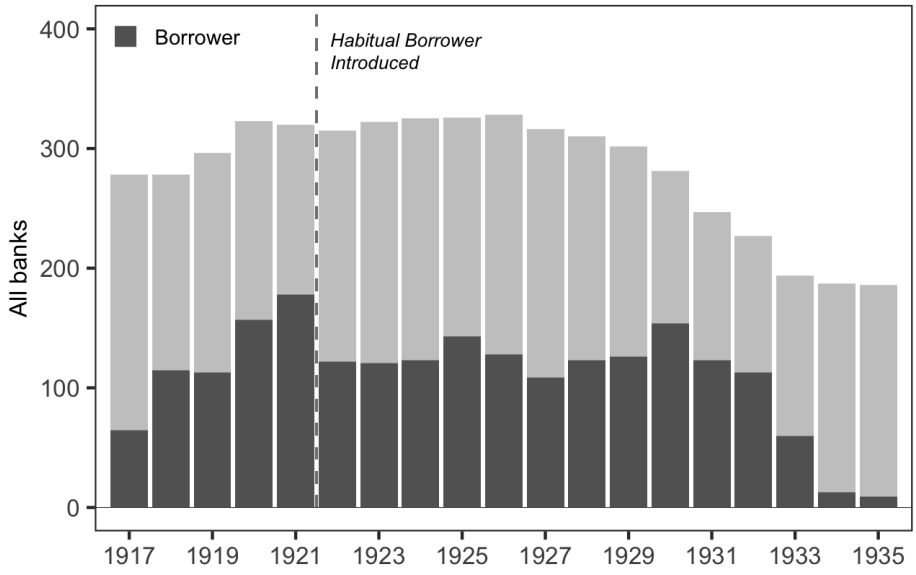
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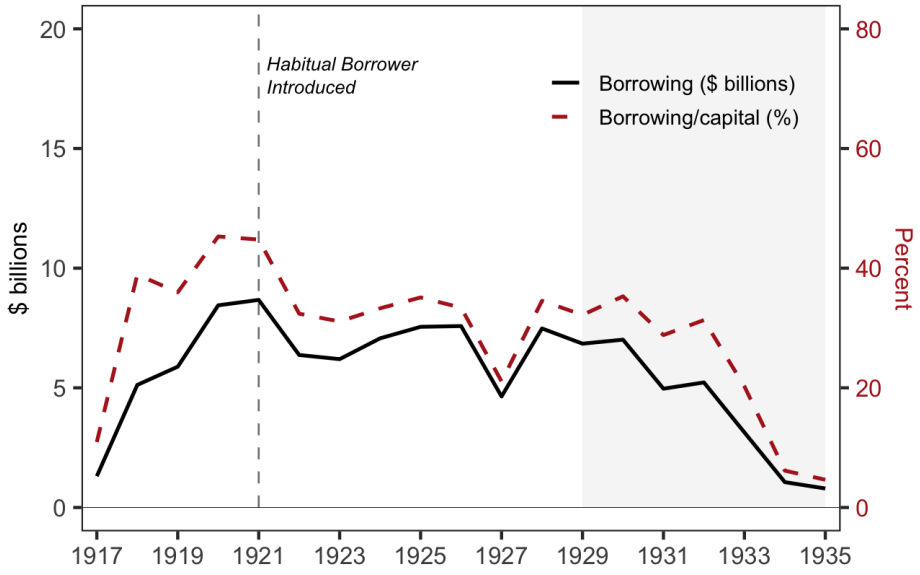
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Figure 1: Interbank Borrowing Network in Virginia, 1917–1935



Notes: This figure plots the number of Virginia state banks that utilized interbank borrowing between 1917 and 1935. "Borrower" refers to bank that reported positive interbank borrowing balances.
Source: Call Reports.

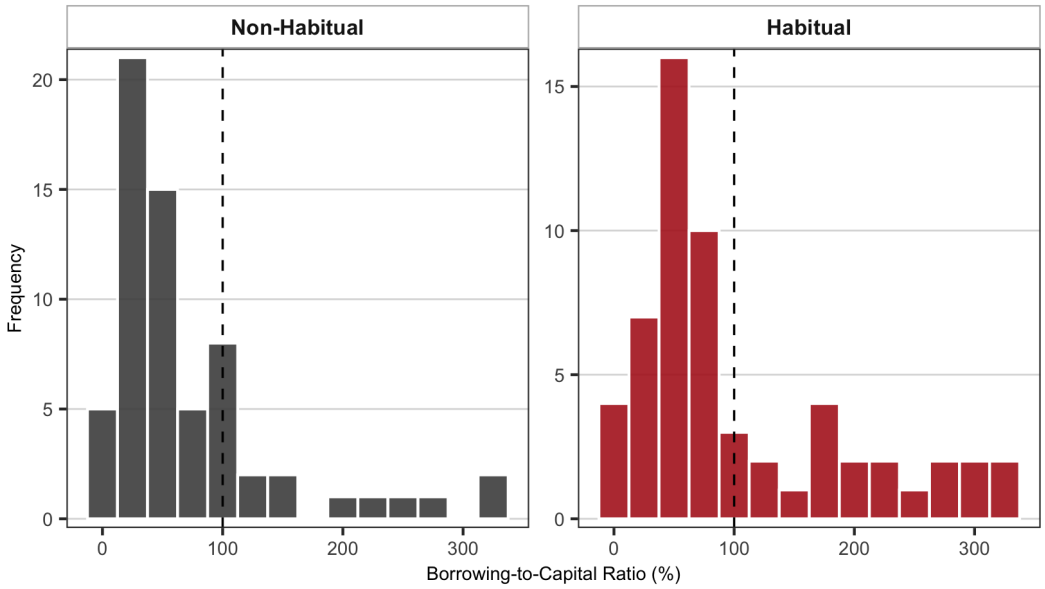
Figure 2: Aggregate Interbank Borrowing in Virginia, 1917–1935



Notes: This figure plots total interbank borrowing among Virginia state banks (left axis, solid line) and the system-wide borrowing-to-capital ratio (right axis, dashed line) from 1917 to 1935. The vertical dashed line represents the year the habitual borrower designation was introduced. The shaded area represents the Great Depression.

Source: Call Reports.

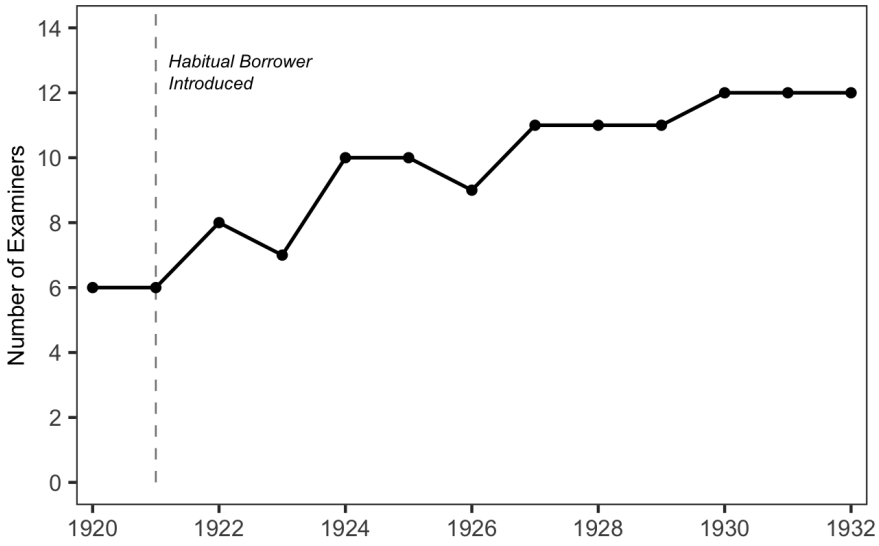
Figure 3: Interbank Borrowing Intensity by Habitual Borrower Status, 1922



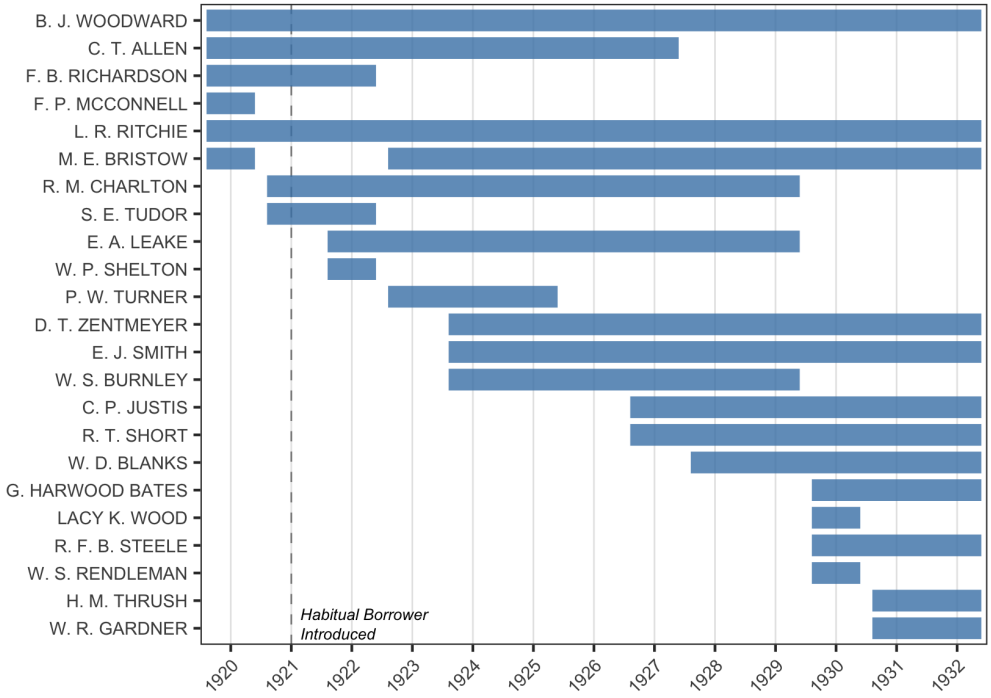
Notes: This figure plots the distribution of the borrowing-to-capital ratio among the 127 Virginia state banks reporting positive interbank borrowing in 1922, separately for habitual and non-habitual borrowers. The dashed vertical line marks 100%, the statutory ceiling above which borrowing required prior approval from the commissioner of banking. Y-axis scales differ across panels.
Source: Call Reports, bank examination reports.

Figure 4: The Virginia Bank Examiner Corps, 1920–1932

(a) Number of Bank Examiners



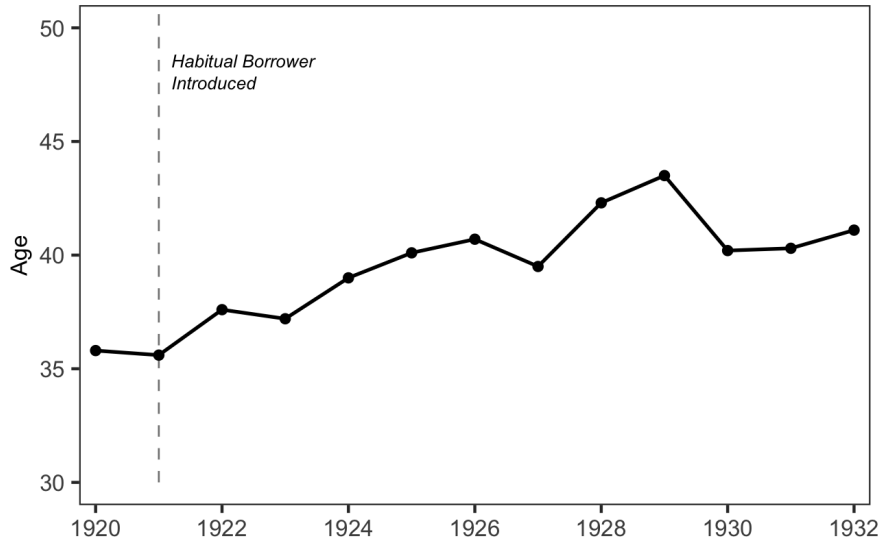
(b) Examiner Tenures



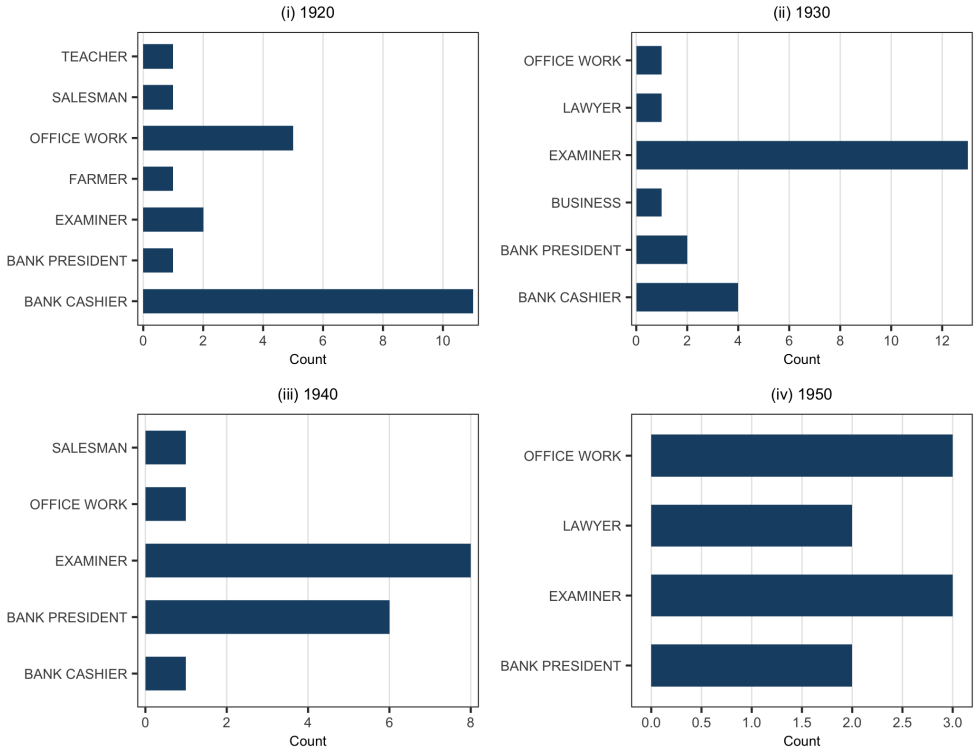
Notes: Panel (a) plots the annual number of bank examiners operating in Virginia. Panel (b) shows the active years for each examiner, ordered by year of first appointment. The dashed vertical line marks the year the habitual borrower designation was introduced.
Source: Bank examination reports.

Figure 5: Demographic Characteristics of Bank Examiners

(a) Average Age of Bank Examiners



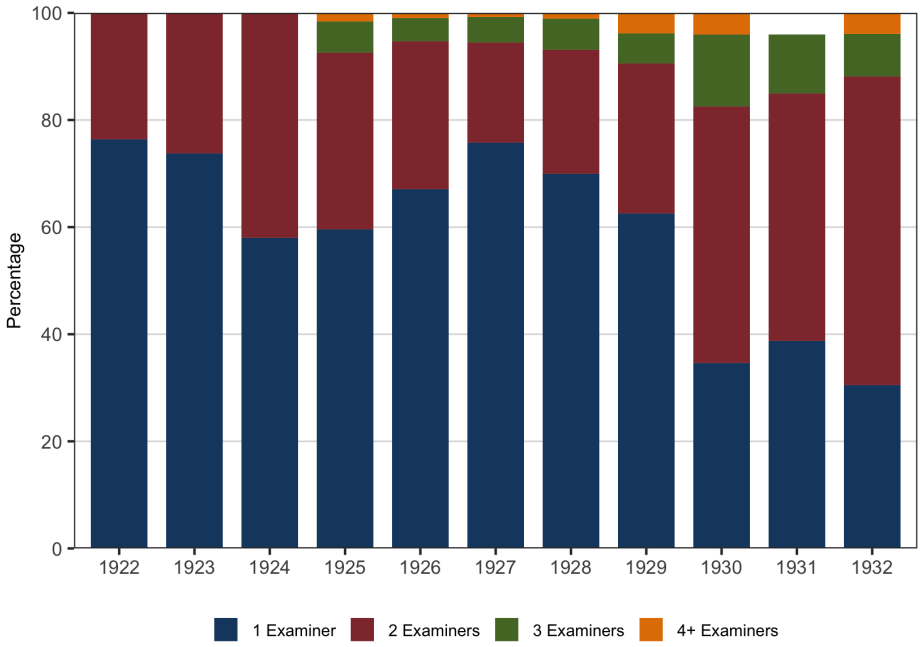
(b) Occupations of Bank Examiners, 1920–1950



Notes: Panel A plots the average age of active Virginia bank examiners from 1920 to 1932. Panel B shows their occupational histories based on U.S. Census records from 1920 through 1950.

Source: Bank examination reports; U.S. Census.

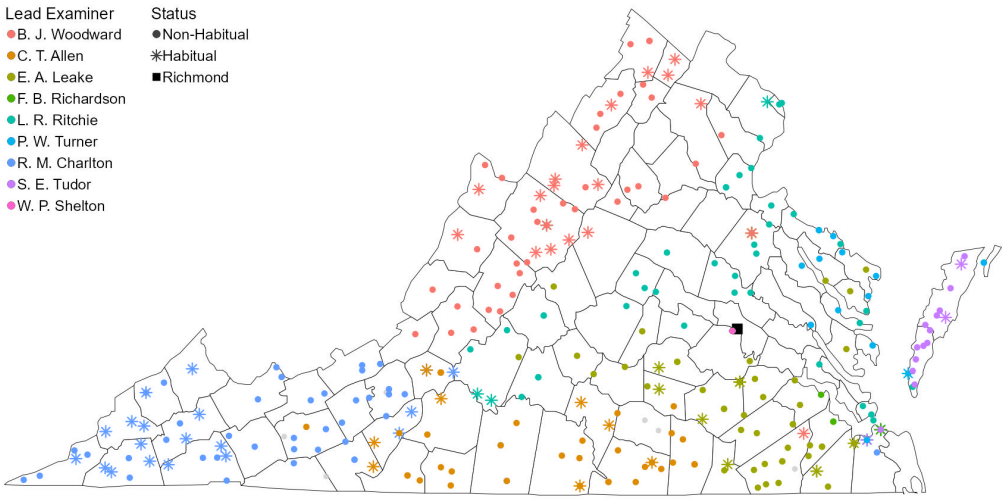
Figure 6: Percentage of Banks by Number of Assigned Examiners



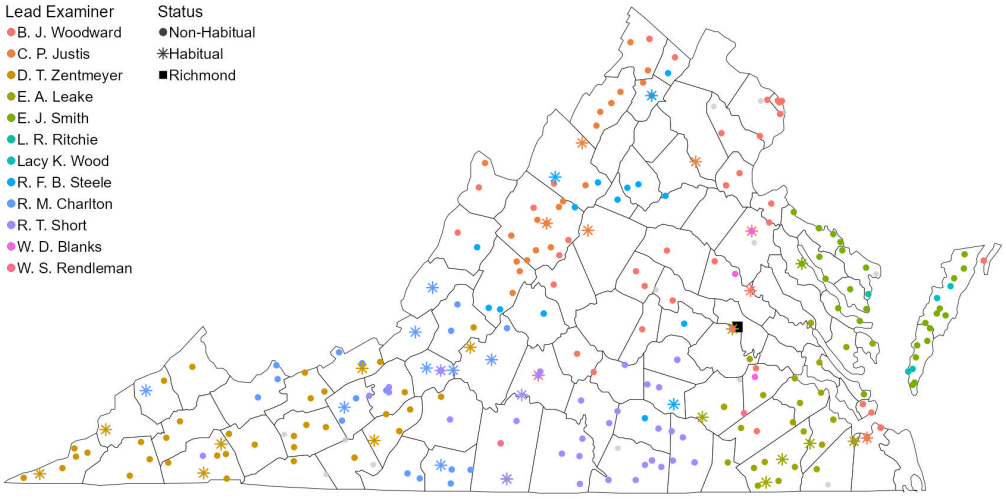
Notes: This plot shows the percentage of banks that were reviewed by a given number of examiners during the examinations in Virginia between 1920 and 1932.
Source: Bank examination reports.

Figure 7: Examiner Assessment of Habitual Borrower Status

(a) 1922



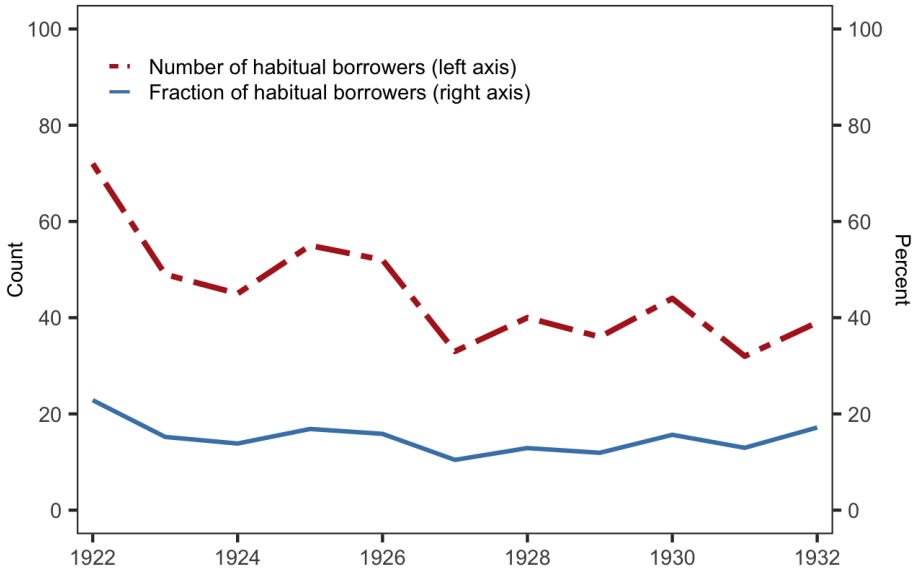
(b) 1929



Notes: This figure plots the headquarter location of habitual and non-habitual borrower banks in 1922 and 1929, sorted by examiner.

Source: Call Reports, bank examination reports, U.S. Census.

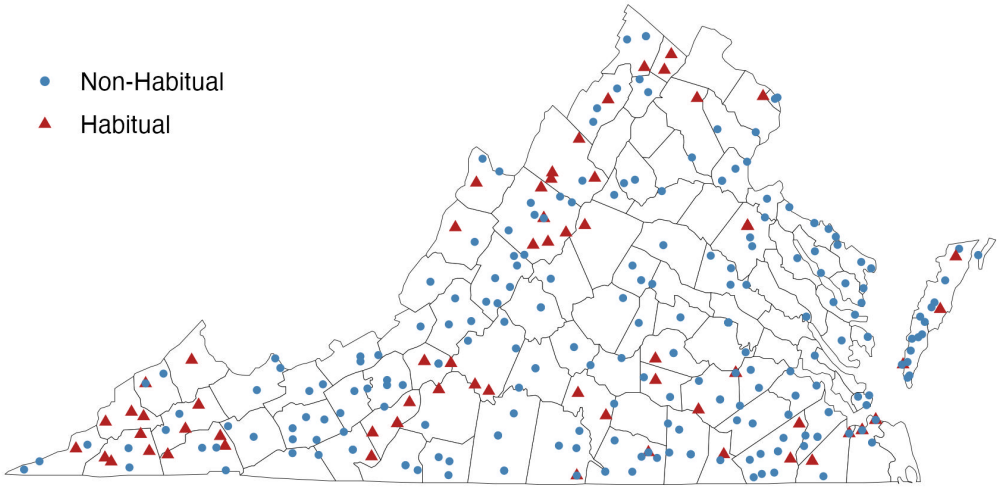
Figure 8: Evolution of Habitual Interbank Borrowing



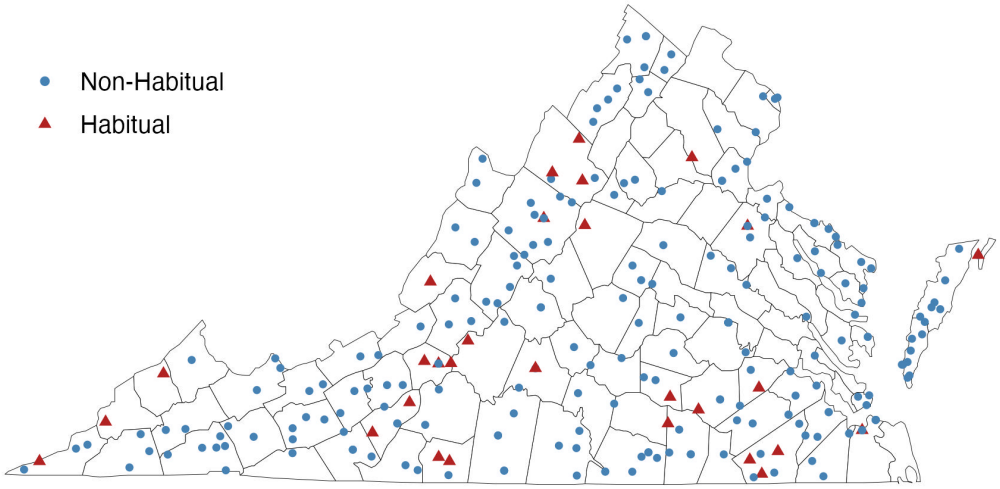
Notes: This figure plots the evolution of habitual borrowing leading up to the Great Depression. We show the total number of habitual borrowers, identified through annual bank examinations, as well as the fraction of Virginia state banks that are habitual borrowers. The sample period is from 1922 to 1932.
Source: Call Reports, bank examination reports.

Figure 9: Geographic Distribution of Habitual Borrowers

(a) 1922



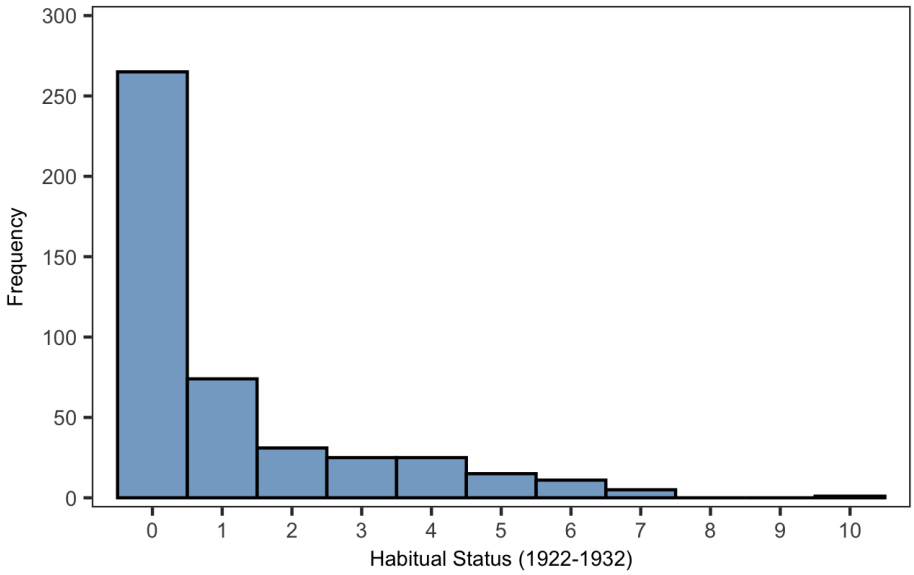
(b) 1929



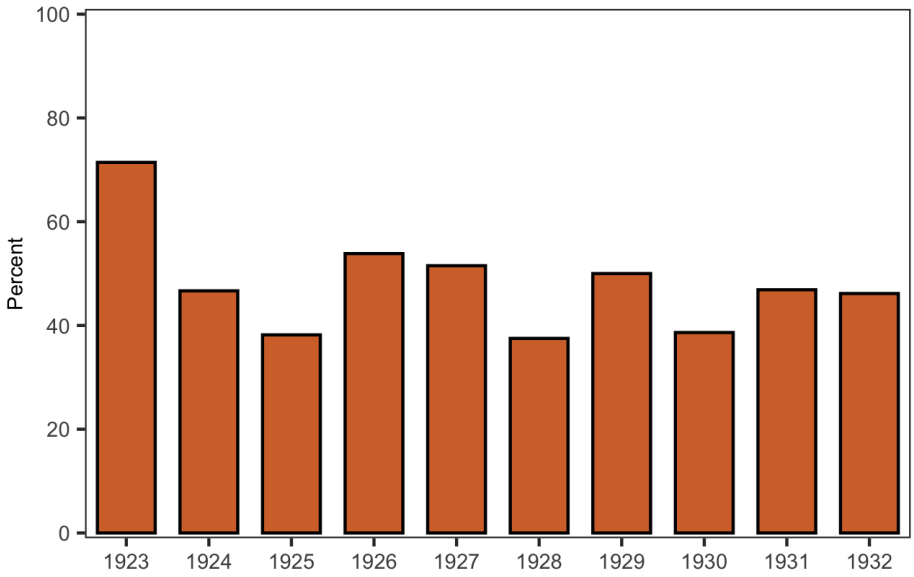
Notes: This figure plots the headquarter location of habitual and non-habitual borrower banks in 1922 and 1929.
Source: Call Reports, bank examination reports.

Figure 10: Persistence of Habitual Borrowing

(a) Histogram of Habitual Borrower Designations

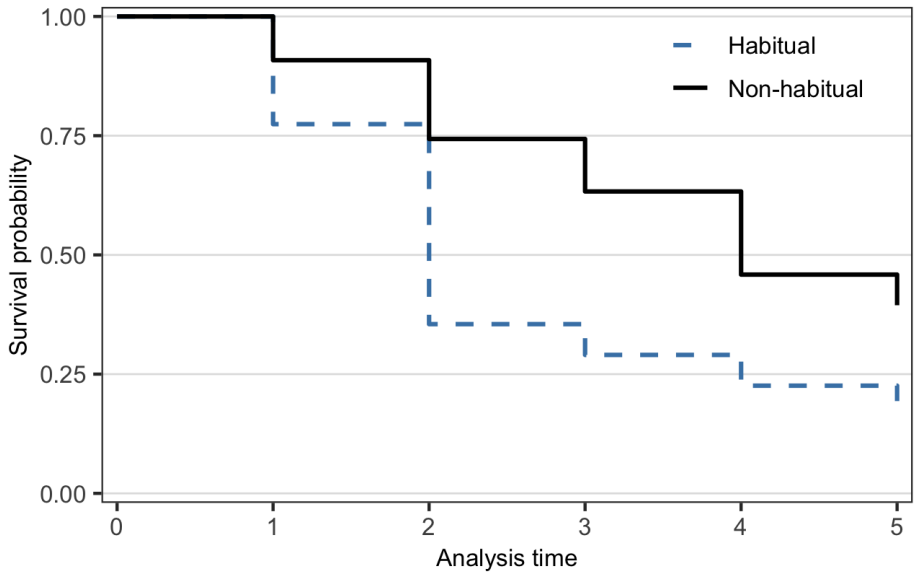


(b) Year-over-Year Persistence Rate



Notes: Panel (a) plots a histogram of the total number of years each bank was classified as a habitual borrower between 1922 and 1932. Panel (b) plots, for each year, the fraction of habitual borrowers that were also classified as habitual in the prior year. The sample period is from 1922 to 1932.
Source: Call Reports, bank examination reports.

Figure 11: Habitual Borrowing and Banking Stability



Notes: This figure shows Kaplan–Meier survival estimates comparing the failure probabilities of habitual borrower and non-habitual borrower banks during the Great Depression. "Habitual" denotes banks that were designated as habitual borrowers in either 1927 or 1928, and "non-habitual" denotes banks that were not habitual borrowers in both years. Analysis time covers the period beginning in 1929.
Source: Bank examination reports, Bankers' Directory.

Table 1: Dynamics of Habitual Borrower Designation

	Status in Year t		
Status in Year $t-1$	Non-Habitual	Habitual	Total
Non-Habitual	2,346	220	2,566
	(91.4%)	(8.6%)	
Habitual	203	205	408
	(49.8%)	(50.2%)	
Total	2,549	425	2,974

Notes: This table presents a transition matrix of habitual borrower status across adjacent years, pooled from 1923 to 1932. Each cell reports the number of bank-year observations and the row-conditional probability in parentheses. The staying rate is the probability that a bank classified as habitual in year $t-1$ is also classified as habitual in year t. The entry rate is the probability that a non-habitual bank receives the designation in the following year.
Source: Bank examination reports.

Table 2: Descriptive Statistics

	Non-Habitual	**Habitual**	**Difference**
Liquid assets to total deposits (%)	18.29	17.83	1.35
	(15.98)	(26.92)	(1.27)
Investment to total deposits (%)	123.45	249.29	-96.46***
	(247.59)	(684.81)	(27.48)
Equity to total deposits (%)	41.58	127.89	-64.70***
	(217.00)	(533.72)	(22.27)
$\mathbb{1}_{Brw>0}$	0.30	0.80	-0.49***
	(0.46)	(0.40)	(0.03)
Borrowings to total deposits (%)	5.06	37.29	-27.47***
	(33.54)	(145.04)	(5.12)
Borrowings to total capital (%)	23.22	70.59	-47.31***
	(53.35)	(71.20)	(3.41)
Log(assets)	12.62	12.71	-0.10
	(1.00)	(1.05)	(0.06)
Return on assets (%)	1.44	0.97	0.47***
	(2.02)	(1.28)	(0.12)
Number of examiners	1.35	1.41	-0.11***
	(0.58)	(0.58)	(0.04)
N	1,755	330	

Notes: This table presents summary statistics for key balance sheet ratios and size for banks classified as habitual or non-habitual borrowers. Means are reported with standard deviations in parentheses for each group. The third column reports the difference in means between the two groups, along with heteroskedasticity-robust t-statistics in parentheses. The sample period is from 1922 to 1928. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

Source: Call Reports, bank examination reports

Table 3: Determinants of Interbank Borrowing and Habitual Borrower Status

	$\mathbf{1}_Brw > 0$		$\mathbf{1}_Habit$	
	(1) LPM	(2) Logit	(3) LPM	(4) Logit
main				
Log(Assets)_$t-1$	0.149*	0.133	-0.100	-0.216
	(0.084)	(0.100)	(0.125)	(0.138)
Investment/Deposits_$t-1$	-0.000	0.005**	0.000	-0.000
	(0.000)	(0.002)	(0.000)	(0.001)
Equity/Deposits_$t-1$	0.000	-0.002	-0.000	0.004
	(0.000)	(0.002)	(0.000)	(0.002)
Liquid Assets/Deposits_$t-1$	-0.004**	-0.060***	-0.003	-0.035**
	(0.001)	(0.012)	(0.003)	(0.016)
ROA_$t-1$	-0.008	-0.146**	-0.010	-0.143
	(0.013)	(0.060)	(0.021)	(0.095)
Log(Age)		-0.063		-0.020
		(0.133)		(0.192)
Borrowings/Capital_$t-1$			0.002***	0.007***
			(0.000)	(0.001)
Bank FE	Y	N	Y	N
Year FE	Y	Y	Y	Y
Observations	1,751	1,751	669	669
R-squared	0.017		0.084	

Notes: This table examines the determinants of interbank borrowing and habitual borrower status among Virginia state banks. The dependent variables are an indicator for whether the bank reports positive interbank borrowing (columns 1 and 2) and habitual borrower status (columns 3 and 4). Columns (3) and (4) condition on bank-years with positive interbank borrowing. Columns (1) and (3) report linear probability model (LPM) estimates with bank and year fixed effects. Columns (2) and (4) report logit coefficients with year fixed effects. All explanatory variables are lagged one year. Continuous variables are winsorized at the 1st and 99th percentiles. The sample period is from 1922 to 1928. Standard errors clustered at the bank level are reported in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.
Source: Call Reports, bank examination reports.

Table 4: Introduction of Discretionary Supervision and Bank Behavior

	(1) Δ Borrowing	(2) Δ Deposits	(3) Δ Invest	(4) Δ Liquid	(5) *ROA*
Habitual	-2.806***	-0.096***	-0.085***	-0.091	-0.234
	(0.972)	(0.031)	(0.024)	(0.089)	(0.175)
Constant	-3.244	0.099	0.157	-0.017	-0.485
	(6.638)	(0.222)	(0.156)	(0.500)	(1.262)
Controls	Y	Y	Y	Y	Y
Observations	119	119	119	119	116
R-squared	0.473	0.419	0.405	0.271	0.114

Notes: This table presents the relation between habitual borrower status in 1922 and the growth of various balance sheet characteristics. The dependent variables are the percent change in interbank borrowing, deposits, investment, and liquid assets, as well as the return on assets between 1922 and 1923. All columns include controls for bank-level characteristics, including 1922 levels of the borrowing to capital ratio, investment to deposits ratio, liquid assets to deposits ratio, log total assets, and bank age. Heteroskedasticity-robust standard errors are reported in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively. *Source:* Call Reports, bank examination reports.

Table 5: Discretionary Supervision and Bank Behavior in the 1920s

	(1) Δ Borrowing	(2) Δ Deposits	(3) Δ Invest	(4) Δ Liquid	(5) *ROA*
Habitual$_{it}$	-2.318***	0.020	0.002	-0.076	-0.050
	(0.711)	(0.038)	(0.016)	(0.063)	(0.160)
Constant	43.310**	7.618***	4.465***	7.076**	-6.730
	(21.739)	(1.469)	(0.536)	(2.811)	(9.219)
Controls	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Observations	673	673	673	673	644
R-Squared	0.538	0.682	0.671	0.718	0.795

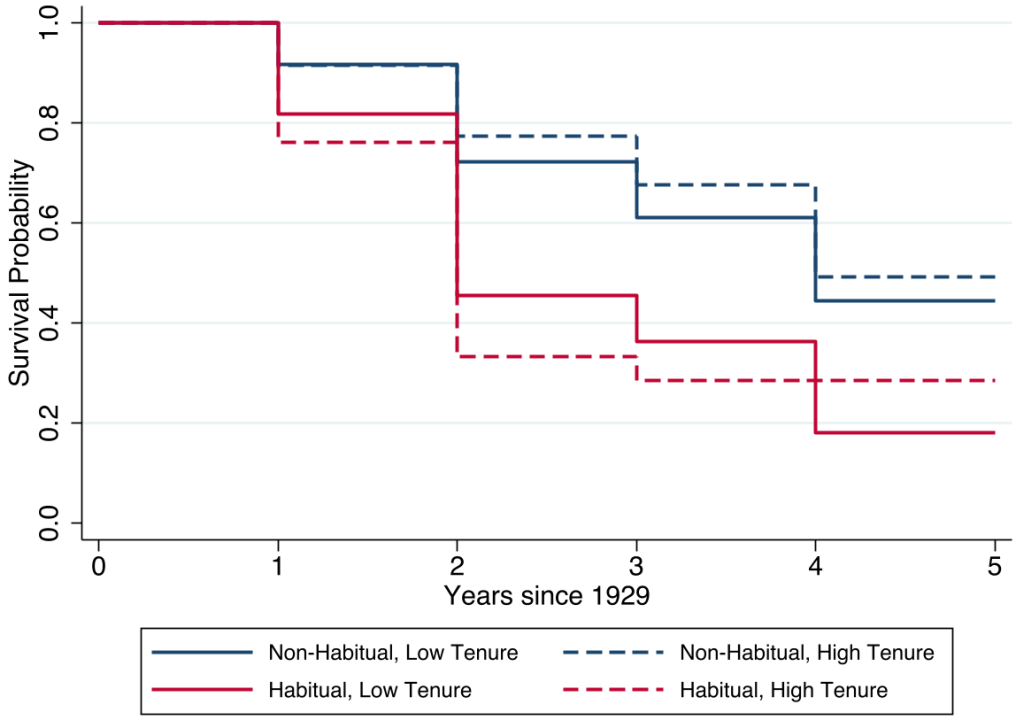
Notes: This table presents the relation between habitual borrower status and the growth of various balance sheet characteristics. The dependent variables are the yearly percent change in interbank borrowing, deposits, investment, and liquid assets, as well as the return on assets. All columns include controls for bank-level characteristics, including lagged levels of the borrowing to capital ratio, investment to deposits ratio, liquid assets to deposits ratio, and log total assets. The sample period is from 1922 to 1928. All columns include bank and year fixed effects. Standard errors clustered at the bank level are reported in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.
Source: Call Reports, bank examination reports.

Table 6: Survival Models: Habitual Borrowing and Bank Failure

	Cox Proportional Hazard Model		**Log-Logistic Accelerated Failure Time**	
	(1)	(2)	(3)	(4)
Habitual	0.732***	1.271**	-0.611***	-0.630*
	(0.227)	(0.634)	(0.154)	(0.374)
Log(Assets)	-0.320**	-0.158	0.188**	0.034
	(0.129)	(0.299)	(0.092)	(0.172)
Liquid Assets/Deposits	-0.011	-0.056	0.003	0.034*
	(0.021)	(0.034)	(0.010)	(0.018)
Equity/Deposits	0.000	0.003*	-0.000	-0.002*
	(0.001)	(0.002)	(0.000)	(0.001)
Borrowings/Capital	0.003***	0.004	-0.002**	-0.001
	(0.001)	(0.002)	(0.001)	(0.001)
Constant			-0.711	0.932
			(1.088)	(2.015)
$ln(\gamma)$			-0.821***	-1.204***
			(0.092)	(0.127)
County FE		Y		Y
Observations	139	139	139	139

Notes: This table presents the survival models of Virginia state banks not incorporated in Richmond during the Great Depression. "Habitual" denotes banks that were classified as habitual borrowers in either 1927 or 1928. Hazard and failure time outcomes are measured from 1929 to 1933. Columns (1) and (2) report hazard ratios from the Cox proportional hazards model, and Columns (3) and (4) report coefficients from the log-logistic accelerated failure time (AFT) model. $ln(\gamma)$ is the natural log of the log-logistic shape parameter. Columns (2) and (4) include county fixed effects. Robust standard errors are clustered at the bank level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Figure 12: Kaplan–Meier Survival Estimates by Habitual Status and Examiner Tenure



Notes: This figure presents Kaplan–Meier survival estimates for Virginia state banks in the survival sample, split by habitual borrower status (1927–1928) and lead examiner tenure. High tenure denotes lead examiners with 5 or more years of service in the State Banking Department; low tenure denotes those with fewer than 5 years. The sample includes 139 banks with non-missing examiner tenure.
Source: Call Reports, bank examination reports, Rand McNally Bankers' Directory (January 1935).

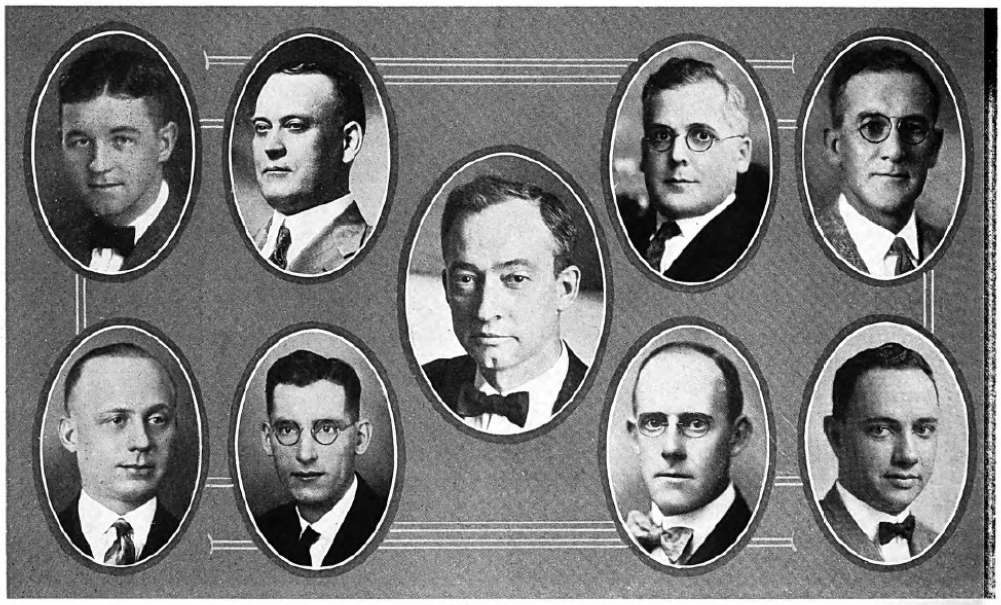
Table 7: Examiner Tenure and Predictive Power of Habitual Borrower Status

	(1)	(2)
	Low Tenure	High Tenure
Habitual	0.568	0.845***
	(0.385)	(0.303)
Log(Assets)	-0.669***	-0.287
	(0.189)	(0.176)
Liquid Assets/Deposits	-0.022	-0.029*
	(0.022)	(0.016)
Equity/Deposits	-0.008	0.002**
	(0.006)	(0.001)
Borrowings/Capital	0.010***	0.003***
	(0.003)	(0.001)
Examiner Tenure	Low Tenure	High Tenure
Controls	Y	Y
Observations	46	89

Notes: This table reports Cox proportional hazards coefficients estimated separately for banks examined by low-tenure (column 1) and high-tenure (column 2) lead examiners. High tenure denotes lead examiners with 5 or more years of service as of the 1927 or 1928 examination. "Habitual" denotes banks classified as habitual borrowers in either 1927 or 1928. Controls include log total assets, liquid assets to deposits, equity to deposits, and borrowings to capital. Robust standard errors in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Appendix A Figures and Tables

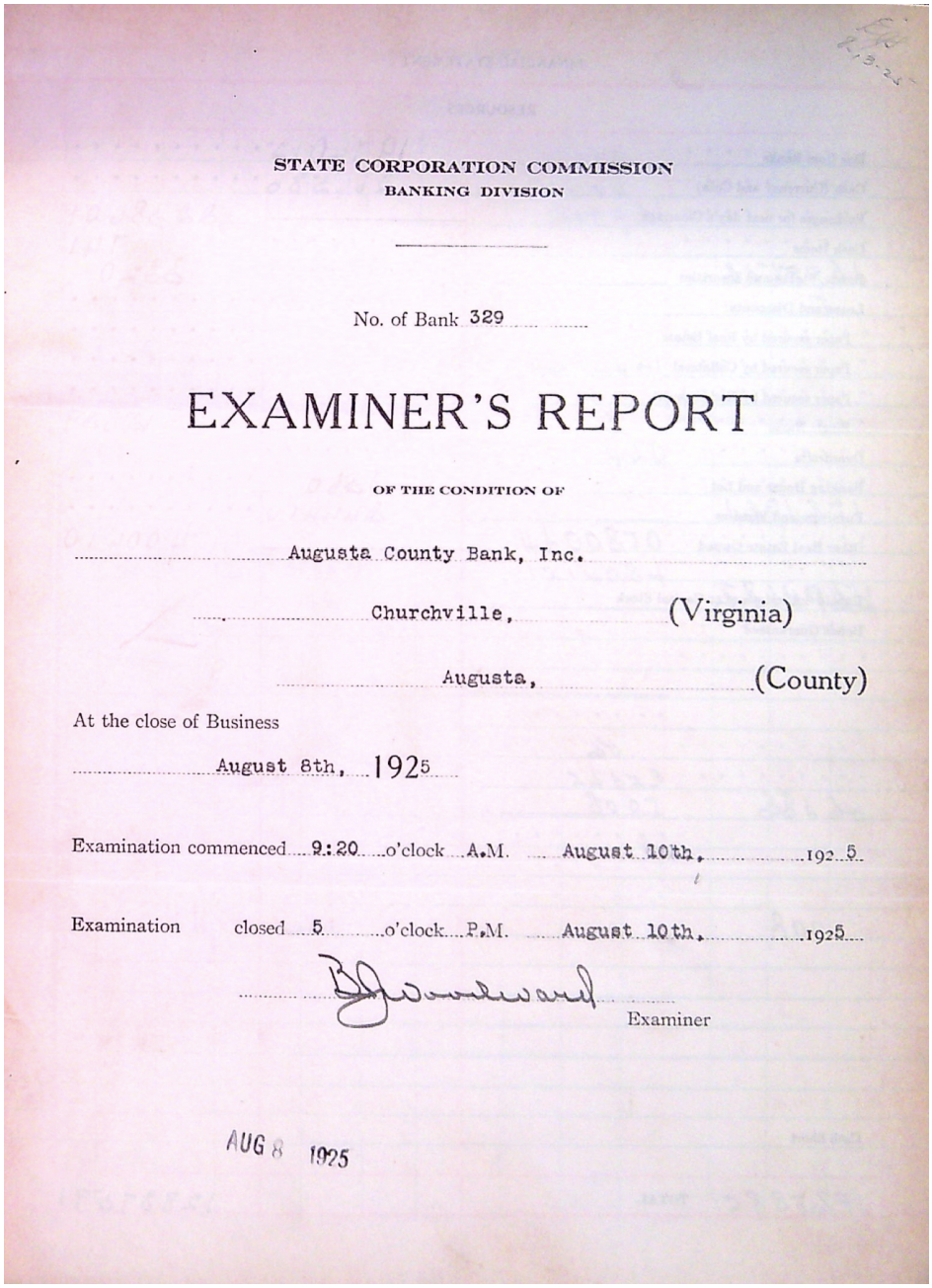
Figure A.1



In the center of group is Myon E. Bristow, Chief Bank Examiner. In the top row, from left to right, are: C. T. Allen, R. M. Charlton, E. J. Smith and P. W. Turner. Lower row, from left to right: E. A. Leake, L. R. Ritchie, B. J. Woodward and D. T. Zentmeyer.

Notes: This images displays a photo directory of examiners for Virginia's state banking department. *Source: Southern Banker* magazine.

Figure A.2



STATE CORPORATION COMMISSION
BANKING DIVISION

No. of Bank 329

EXAMINER'S REPORT

OF THE CONDITION OF

Augusta County Bank, Inc.

Churchville, (Virginia)

Augusta, (County)

At the close of Business

August 8th, 1925

Examination commenced 9:20 o'clock A.M. August 10th, 1925

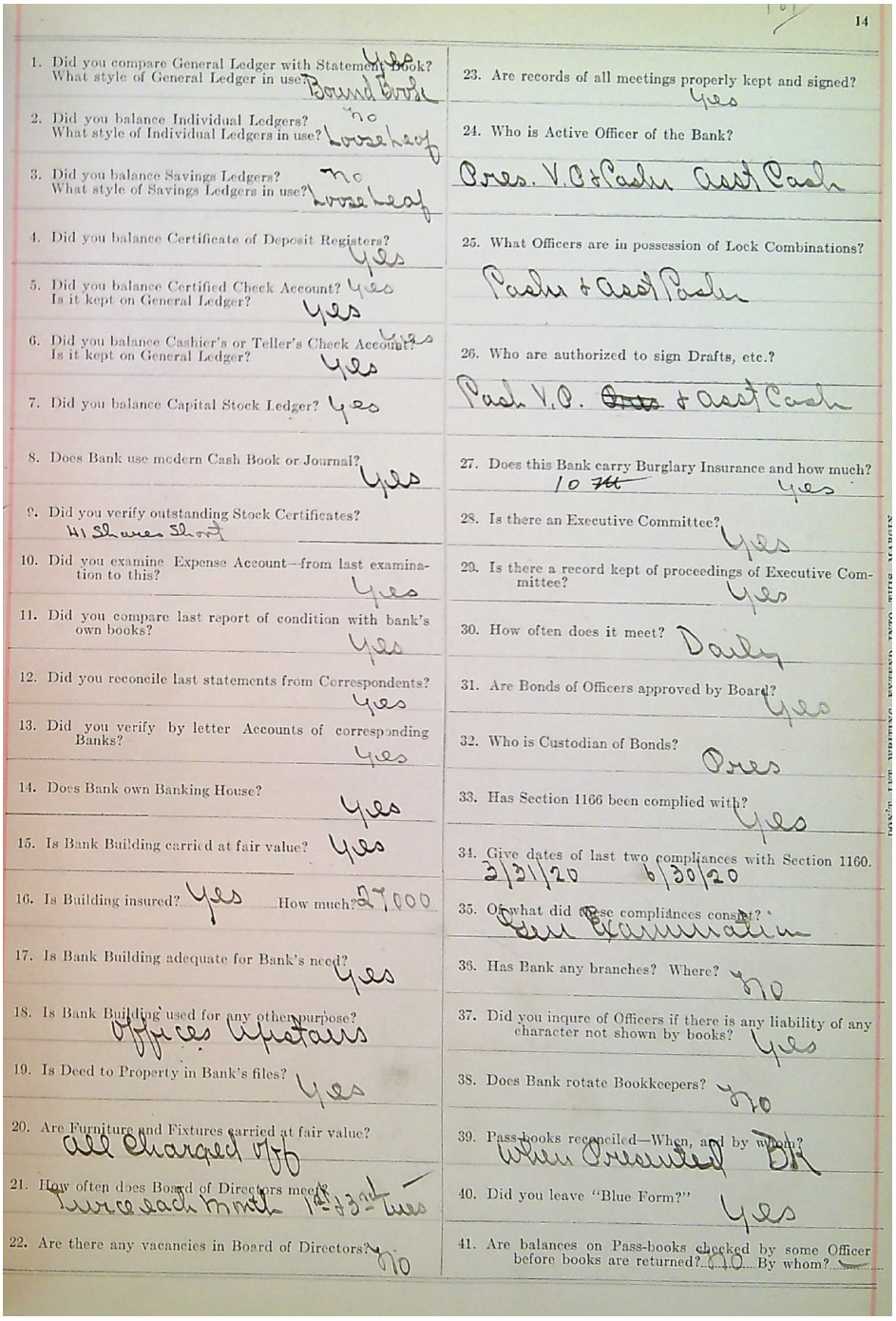
Examination closed 5 o'clock P.M. August 10th, 1925

B J Woodward
Examiner

AUG 8 1925

Notes: This images displays the cover page of a Virginia state bank examination report from 1925.

Figure A.3

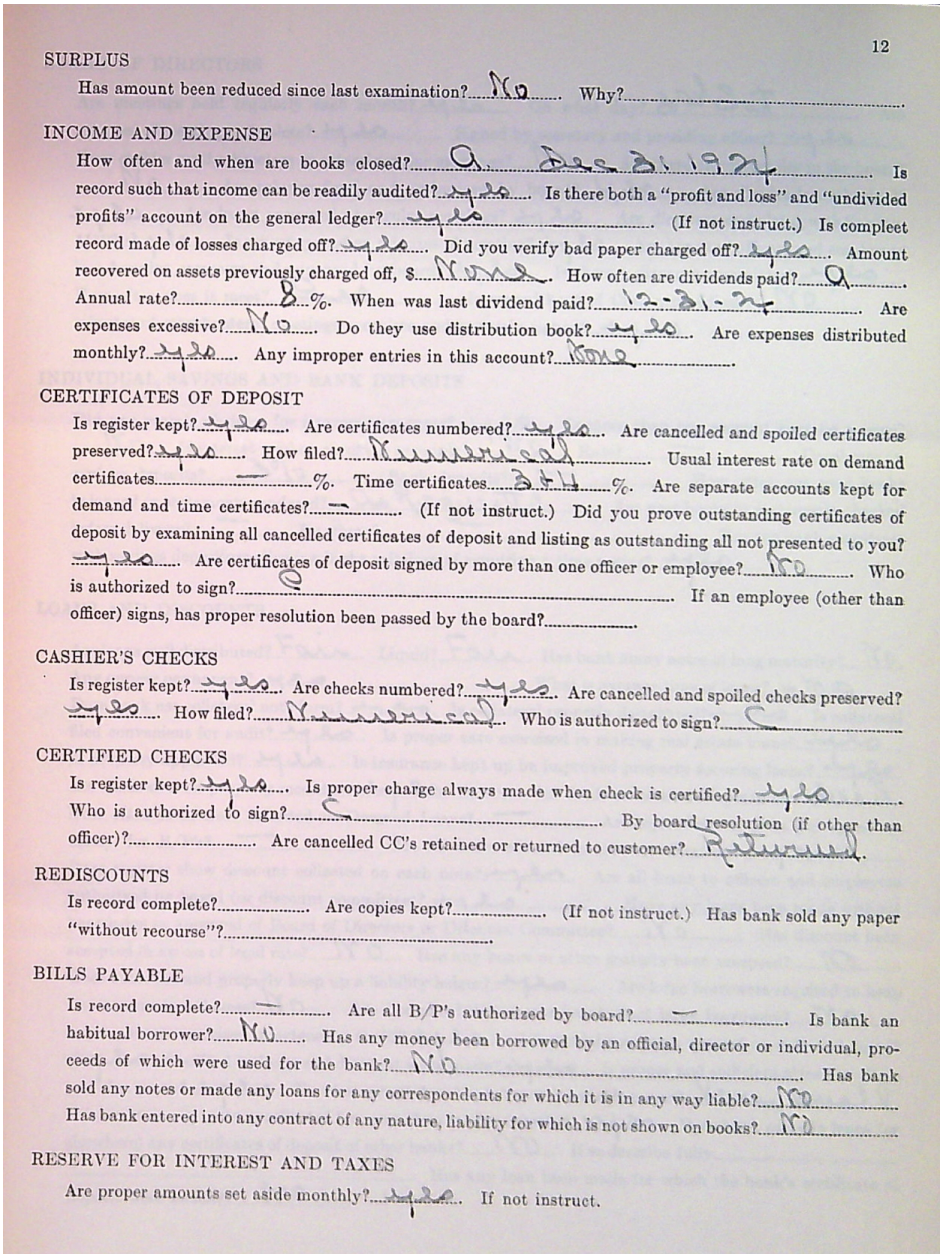


14

1. Did you compare General Ledger with Statement Book? Yes
   What style of General Ledger in use? Bound Book
2. Did you balance Individual Ledgers? no
   What style of Individual Ledgers in use? Loose leaf
3. Did you balance Savings Ledgers? no
   What style of Savings Ledgers in use? Loose Leaf
4. Did you balance Certificate of Deposit Registers? Yes
5. Did you balance Certified Check Account? Yes
   Is it kept on General Ledger? Yes
6. Did you balance Cashier's or Teller's Check Account? Yes
   Is it kept on General Ledger? Yes
7. Did you balance Capital Stock Ledger? Yes
8. Does Bank use modern Cash Book or Journal? Yes
9. Did you verify outstanding Stock Certificates? 41 Shares Short
10. Did you examine Expense Account—from last examination to this? Yes
11. Did you compare last report of condition with bank's own books? Yes
12. Did you reconcile last statements from Correspondents? Yes
13. Did you verify by letter Accounts of corresponding Banks? Yes
14. Does Bank own Banking House? Yes
15. Is Bank Building carried at fair value? Yes
16. Is Building insured? Yes How much? 27,000
17. Is Bank Building adequate for Bank's need? Yes
18. Is Bank Building used for any other purpose? Offices upstairs
19. Is Deed to Property in Bank's files? Yes
20. Are Furniture and Fixtures carried at fair value? all Charged off
21. How often does Board of Directors meet? Once each month 1st Tues
22. Are there any vacancies in Board of Directors? No
23. Are records of all meetings properly kept and signed? Yes
24. Who is Active Officer of the Bank? Pres. V.P. Cash Asst Cash
25. What Officers are in possession of Lock Combinations? Cash & Asst Cash
26. Who are authorized to sign Drafts, etc.? Cash V.P. ~~Asst~~ & Asst Cash
27. Does this Bank carry Burglary Insurance and how much? 10 M Yes
28. Is there an Executive Committee? Yes
29. Is there a record kept of proceedings of Executive Committee? Yes
30. How often does it meet? Daily
31. Are Bonds of Officers approved by Board? Yes
32. Who is Custodian of Bonds? Pres
33. Has Section 1166 been complied with? Yes
34. Give dates of last two compliances with Section 1160. 3/31/20 6/30/20
35. Of what did these compliances consist? Call Examination
36. Has Bank any branches? Where? No
37. Did you inqure of Officers if there is any liability of any character not shown by books? Yes
38. Does Bank rotate Bookkeepers? No
39. Pass-books reconciled—When, and by whom? When Presented By
40. Did you leave "Blue Form?" Yes
41. Are balances on Pass-books checked by some Officer before books are returned? No By whom?

Notes: This images displays an excerpt from the examination report of a Virginia state bank prior to 1922.

Figure A.4



12

SURPLUS

Has amount been reduced since last examination? No. Why?

INCOME AND EXPENSE

How often and when are books closed? Q. Dec. 31, 1924. Is record such that income can be readily audited? Yes. Is there both a "profit and loss" and "undivided profits" account on the general ledger? Yes. (If not instruct.) Is compleet record made of losses charged off? Yes. Did you verify bad paper charged off? Yes. Amount recovered on assets previously charged off, $ None. How often are dividends paid? Q. Annual rate? 8 %. When was last dividend paid? 12-31-24. Are expenses excessive? No. Do they use distribution book? Yes. Are expenses distributed monthly? Yes. Any improper entries in this account? None.

CERTIFICATES OF DEPOSIT

Is register kept? Yes. Are certificates numbered? Yes. Are cancelled and spoiled certificates preserved? Yes. How filed? Numerical. Usual interest rate on demand certificates. — %. Time certificates 3 & 4 %. Are separate accounts kept for demand and time certificates? —. (If not instruct.) Did you prove outstanding certificates of deposit by examining all cancelled certificates of deposit and listing as outstanding all not presented to you? Yes. Are certificates of deposit signed by more than one officer or employee? No. Who is authorized to sign? C. If an employee (other than officer) signs, has proper resolution been passed by the board?

CASHIER'S CHECKS

Is register kept? Yes. Are checks numbered? Yes. Are cancelled and spoiled checks preserved? Yes. How filed? Numerical. Who is authorized to sign? C.

CERTIFIED CHECKS

Is register kept? Yes. Is proper charge always made when check is certified? Yes. Who is authorized to sign? C. By board resolution (if other than officer)? Are cancelled CC's retained or returned to customer? Returned.

REDISCOUNTS

Is record complete? Are copies kept? (If not instruct.) Has bank sold any paper "without recourse"?

BILLS PAYABLE

Is record complete? —. Are all B/P's authorized by board? —. Is bank an habitual borrower? No. Has any money been borrowed by an official, director or individual, proceeds of which were used for the bank? No. Has bank sold any notes or made any loans for any correspondents for which it is in any way liable? No. Has bank entered into any contract of any nature, liability for which is not shown on books? No.

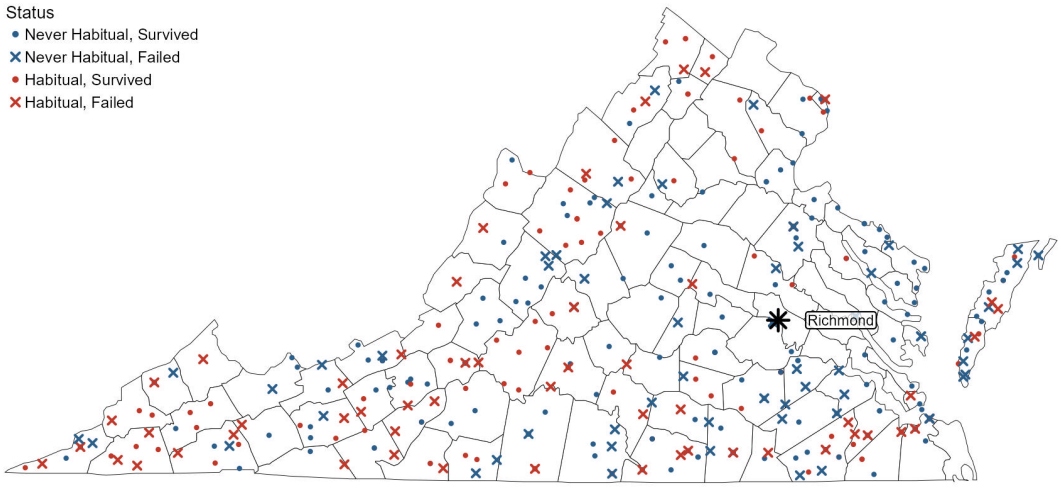
RESERVE FOR INTEREST AND TAXES

Are proper amounts set aside monthly? Yes. If not instruct.

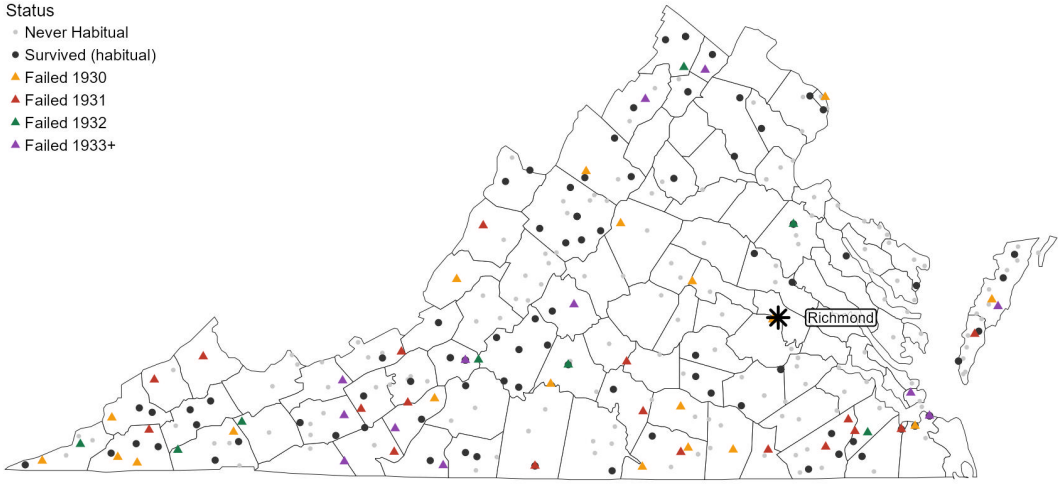
Notes: This images displays an excerpt from the examination report of a Virginia state bank in 1922 and later.

Figure A.5: Geographic Distribution of Bank Failures

(a) Survival Outcomes by Habitual Borrower Status



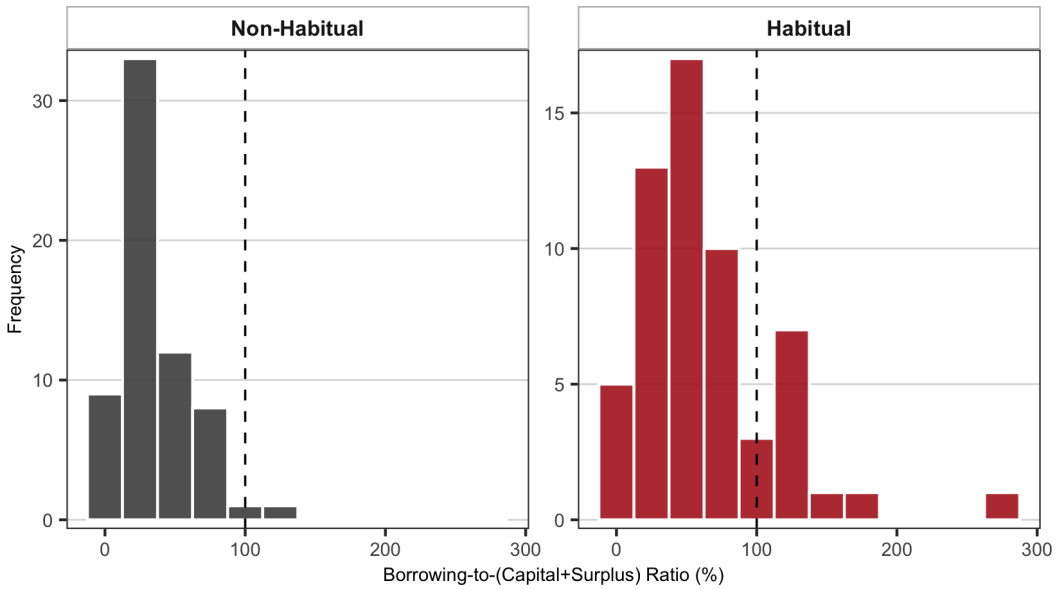
(b) Failure Timing among Habitual Borrowers



Notes: Panel A plots the location of all Virginia state banks in the survival sample, distinguished by habitual borrower status (1927–1928) and whether the bank survived or failed during the Great Depression. Panel B plots the year of failure among those that did not survive.

Source: Call Reports, bank examination reports, Rand McNally Bankers' Directory (January 1935).

Figure A.6: Interbank Borrowing Intensity by Habitual Borrower Status, 1922: Alternative Measure



Notes: This figure replicates Figure 3 using borrowing scaled by the sum of capital and surplus as the denominator, rather than capital alone. The surplus component of bank equity as recorded in the Call Reports includes both accumulated surplus and undivided profits, making it an imperfect proxy for the statutory denominator. The dashed vertical line marks 100%.
Source: Call Reports, bank examination reports.

Table A.1: Descriptive Statistics, 1922

	(1)	(2)	(3)
	Non-Habitual	**Habitual**	**Difference**
Liquid assets to total deposits (%)	21.00	14.37	6.63***
	(11.37)	(6.42)	(1.42)
Investment to total deposits (%)	106.45	128.90	-22.46***
	(34.96)	(40.69)	(4.93)
Equity to total deposits (%)	29.94	36.34	-6.40
	(27.13)	(33.48)	(3.89)
Borrowings to total deposits (%)	3.02	17.94	-14.92***
	(7.80)	(17.81)	(1.47)
Borrowings to total capital (%)	18.85	87.00	-68.15***
	(48.45)	(90.49)	(8.20)
Log(assets)	12.48	12.50	-0.02
	(1.03)	(0.98)	(0.14)
Observations	242	70	

Notes: This table presents summary statistics for key balance sheet ratios and size for banks classified as habitual or non-habitual borrowers in 1922. Means are reported with standard deviations in parentheses for each group. The third column reports the difference in means between the two groups, along with heteroskedasticity-robust standard errors in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

Source: Call Reports, bank examination reports.

Table A.2: Robustness: Excluding Richmond-Headquartered Banks

Panel A: Cross-Section (1922–1923)

	(1) Δ Borrowing	(2) Δ Deposits	(3) Δ Invest	(4) Δ Liquid	(5) *ROA*
Habitual	-2.781***	-0.091***	-0.082***	-0.071	-0.239
	(0.979)	(0.031)	(0.024)	(0.088)	(0.176)
Constant	-0.390	0.190	0.199	0.285	-0.728
	(6.891)	(0.224)	(0.164)	(0.483)	(1.337)
Controls	Y	Y	Y	Y	Y
Observations	116	116	116	116	113
R-squared	0.461	0.330	0.342	0.291	0.122

Panel B: Panel (1922–1928)

	(1) Δ Borrowing	(2) Δ Deposits	(3) Δ Invest	(4) Δ Liquid	(5) *ROA*
Habitual_*it*	-2.556***	-0.060	0.008	-0.012	0.001
	(0.722)	(0.066)	(0.016)	(0.060)	(0.153)
Constant	25.761	10.261***	4.827***	13.517***	3.949
	(25.585)	(1.372)	(0.583)	(2.945)	(6.449)
Controls	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Observations	640	640	640	640	611
R-squared	0.530	0.435	0.646	0.486	0.768

Notes: This table replicates the main specifications excluding banks headquartered in Richmond. Panel A replicates Table 4: the dependent variables are percent changes in interbank borrowing, deposits, investment, and liquid assets between 1922 and 1923, with controls for 1922 balance sheet characteristics and bank age. Heteroskedasticity-robust standard errors in parentheses. Panel B replicates Table 5: the dependent variables are yearly percent changes over 1922–1928, with bank and year fixed effects and lagged balance sheet controls. Standard errors clustered at the bank level in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.
Source: Call Reports, bank examination reports.

Table A.3: Robustness to Examiner Fixed Effects

Panel A: Cross-Section (1922–1923)

	(1) Δ Borrowing	(2) Δ Deposits	(3) Δ Invest	(4) Δ Liquid	(5) *ROA*
Habitual	-3.065***	-0.100***	-0.081***	-0.102	-0.354*
	(0.970)	(0.034)	(0.027)	(0.091)	(0.187)
Constant	3.000	0.250	0.250	0.531	-0.630
	(7.016)	(0.255)	(0.175)	(0.516)	(1.458)
Examiner FE	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y
Observations	119	119	119	119	116
R-squared	0.517	0.448	0.429	0.363	0.196

Panel B: Panel (1922–1928)

	(1) Δ Borrowing	(2) Δ Deposits	(3) Δ Invest	(4) Δ Liquid	(5) *ROA*
Habitual_*it*	-2.235***	-0.058	0.002	-0.058	-0.036
	(0.722)	(0.054)	(0.016)	(0.065)	(0.159)
Constant	36.185	7.551***	4.308***	7.092**	-6.136
	(24.097)	(1.476)	(0.448)	(2.967)	(9.715)
Examiner FE	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y
Observations	642	642	642	642	642
R-squared	0.535	0.440	0.693	0.451	0.733

Notes: This table replicates the main specifications adding fixed effects for the assigned primary examiner. Panel A replicates Table 4 augmenting with fixed effects for each bank's 1922 primary examiner (from `examiner_1` in the examination records); identification comes from within-examiner cross-bank variation. Heteroskedasticity-robust standard errors in parentheses. Panel B replicates Table 5 absorbing a time-varying primary examiner fixed effect alongside bank and year fixed effects; the examiner fixed effect is identified from banks whose primary examiner changed at least once over 1922–1928 (56% of the sample). Standard errors clustered at the bank level in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.
Source: Call Reports, bank examination reports.

Table A.4: Robustness: Panel Without Bank Fixed Effects

	(1) Δ Borrowing	(2) Δ Deposits	(3) Δ Invest	(4) Δ Liquid	(5) *ROA*
Habitual_*it*	-4.572***	-0.008	-0.015	-0.001	-0.190*
	(0.507)	(0.027)	(0.012)	(0.039)	(0.113)
Constant	10.435***	-0.279	0.107	0.016	-0.470
	(3.572)	(0.286)	(0.080)	(0.237)	(0.952)
Controls	Y	Y	Y	Y	Y
Bank FE	N	N	N	N	N
Year FE	Y	Y	Y	Y	Y
Observations	671	671	671	671	642
R-Squared	0.124	0.034	0.132	0.078	0.379

Notes: This table replicates Table 5 omitting bank fixed effects. The specification includes year fixed effects and the same controls as the baseline panel; identification comes from cross-sectional variation in habitual status across banks within each year. The sample is restricted to banks with positive interbank borrowing over 1922–1928 (excluding FRB member banks). Standard errors clustered at the bank level in parentheses. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.
Source: Call Reports, bank examination reports.