Environmental Deregulation and Financial Statement Verification in Bank Lending

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Abstract: We examine how U.S. banks adjusted a key component of their credit evaluation practices after a major deregulatory shift in federal environmental and energy policy starting in 2017. Although the deregulatory changes reduced compliance costs, they also raised uncertainty about future environmental liabilities, particularly for private oil and gas firms. We test whether banks responded by requesting more highly assured financial statements as part of ex-ante screening and ex-post monitoring. Using proprietary data on borrower financial statements, we compare verification practices for oil and gas borrowers to those in unaffected industries using a difference-in-differences design. Banks sought more unqualified audits after 2017, with the strongest effects among large firms and in regions with historically strict or sharply reduced Environmental Protection Agency enforcement. These patterns are inconsistent with industry distress or climate-risk supervisory pressure and instead suggest that banks substitute toward private verification when public oversight declines.

Keywords: private firms, bank monitoring, financial statement verification, regulatory risk

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1. Introduction

Banks that lend to private firms evaluate a wide range of data when assessing credit risk, including firm-level financial strength and broader industry conditions that shape future cash flows and potential liabilities. In this study, we examine how U.S. banks adjusted their credit evaluation practices following a major deregulatory shift in federal environmental and energy policy starting in 2017. After the 2016 election, the first Trump administration rolled back environmental oversight and reduced compliance burdens for fossil fuel industries. These actions lowered immediate regulatory costs but raised uncertainty about future environmental liabilities, operational disruptions, and the potential for abrupt policy reversals. Formal public oversight declined even as the uncertainty associated with environmental exposure grew and became more salient for lenders.

We study whether banks responded to this shift by tightening the level of assurance they request on borrowers' financial statements. Our primary analysis focuses on private firms in the oil and gas industry, which experienced substantial reductions in federal oversight. Using proprietary data from the Risk Management Association (RMA), which record the assurance level of the financial statements that private borrowers submit to their lenders, we compare changes in banks' assurance demand for oil and gas borrowers with those in unaffected industries before and after 2017. Our empirical strategy exploits the timing and industry targeting of the policy shift in a difference-in-differences framework. This design tests whether banks increased their demand for high-assurance reporting—specifically unqualified audits—after deregulation, consistent with an uncertainty-induced verification mechanism under which banks strengthen private monitoring when public environmental oversight weakens.

Focusing on private oil and gas borrowers is important for two reasons. First, unlike public firms, which are required to disclose audited financial statements, private firms and their lenders can choose among unqualified audits, reviews, compilations, tax returns, and internally prepared statements. This variation provides a direct and economically meaningful measure of banks' assurance demand, allowing us to observe changes in monitoring intensity rather than inferring them from loan pricing or covenant use alone. Second, private oil and gas firms lie outside most ESG disclosure mandates and sustainability-reporting regimes that shape the public-firm literature on environmental risk. Studying this segment therefore reveals how banks adjust screening and monitoring when borrowers face heightened environmental risk but are not subject to market-based ESG pressures or public disclosure requirements.

We document a significant post-2017 increase in banks' demand for unqualified audits from oil and gas borrowers. On average, banks increased their demand for unqualified audited financial statements by nearly 8 percentage points after 2017, corresponding to roughly a 40 percent increase relative to the pre-2017 baseline. The tightening is not uniform across the industry: it is concentrated among large firms, which experienced larger reductions in federal oversight and face greater exposure to environmental liabilities. To distinguish the uncertainty-induced verification mechanism from competing explanations, we exploit regional variation in Environmental Protection Agency (EPA) enforcement intensity. We find that the increase in high-assurance reporting is strongest in regions where EPA enforcement was historically strict and in regions where enforcement relaxed most after 2017. Because supervisory expectations regarding climate-risk management apply nationally, they cannot explain this geographic concentration. Instead, the regional patterns are consistent with the interpretation that banks increased assurance demand in response to declines in local public oversight.

Our findings are also inconsistent with an industry-distress explanation. If deteriorating fundamentals were the primary driver, banks would be expected to tighten assurance requirements most sharply for small or risky borrowers. Instead, the strongest effects arise among large firms, which are typically more diversified. Moreover, industry distress would not predict the sharp cross-regional variation tied to changes in EPA enforcement that we observe.

We provide additional validation through complementary analyses. Using credit-market data, we show that lending volumes declined and loan spreads increased for oil and gas borrowers relative to other industries after 2017, consistent with tighter credit screening. We also replicate our primary specification for the smaller coal industry and find a similar post-2017 shift toward higher-assurance reporting and away from weaker verification categories. Although the coal sample does not support detailed heterogeneity analysis, these results provide external validation and support a broader interpretation across fossil fuel sectors.

Our findings contribute to three related literatures. First, we document a novel mechanism through which policy regime changes affect financial intermediation: when environmental deregulation raises uncertainty about future liabilities, banks respond by increasing their demand for higher-assurance financial statements, shifting monitoring effort from regulators to lenders and generating an unintended increase in firms' cost of debt. Second, we extend research on the role of financial statements in lending by identifying deregulation as a policy-relevant determinant of banks' documentation and assurance demands, even as financial technology has reduced reliance on audited statements in other settings. Finally, we contribute to the literature on environmental and ESG-related risks in credit markets by focusing on private firms outside public disclosure regimes, showing that banks adjust screening and monitoring in response to changes in regulatory oversight rather than market-based ESG pressures.

2. Institutional Background and Hypotheses

2.1 Environmental Deregulation Starting in 2017

The election of President Donald Trump in 2016 marked a significant deregulatory shift in U.S. environmental and energy policy (Figure 1), with substantial implications for the oil and gas industry. One of the new administration's first actions was to announce the U.S. withdrawal from the Paris Climate Accord in 2017, signaling a broader retreat from international climate commitments and a domestic agenda aimed at reducing regulatory burdens on fossil fuel producers. Federal oversight of the oil and gas industry was rolled back through administrative changes that reduced compliance costs and scaled back environmental reporting obligations.

One of the most consequential changes was the repeal of methane emissions standards for new and modified oil and gas sources, which had required firms to monitor and repair leaks under the Clean Air Act. Their removal lowered compliance burdens, particularly for firms with extensive infrastructure and multi-site operations. Additional rollbacks—including the replacement of the Waters of the United States rule, the rescission of the Clean Power Plan, reduced enforcement of the National Environmental Policy Act, changes to the Greenhouse Gas Reporting Program, and declines in federal inspection activity—collectively reduced permitting, reporting, and monitoring requirements for fossil fuel infrastructure.

These policy shifts had especially pronounced effects on large oil and gas firms, which face more extensive regulatory filings, emissions disclosures, and permitting requirements due to their scale and geographic footprint. Larger firms are more likely to operate across multiple jurisdictions, hold assets in environmentally sensitive areas, and be subject to federal environmental rules governing emissions, land use, and water quality. The rollback of methane

standards, narrowing of Waters of the United States coverage, and streamlining of leasing and drilling permits substantially reduced both substantive and procedural oversight for these firms.

In the same period, the international Task Force on Climate-related Financial Disclosures (TCFD) released its final recommendations in 2017, which were meant to guide how financial institutions voluntarily assess the potential credit implications of environmental exposures. The TCFD framework encouraged firms to evaluate transition and physical risks, and it raised awareness among lenders about the potential consequences of lending to industries sensitive to environmental policy shifts. Although these recommendations increased awareness of climate-related financial risks among large financial institutions, they did not alter mandated reporting requirements for private borrowers and do not map to any region-specific variation that would plausibly drive our main results.

The coal industry experienced a comparable reduction in regulatory oversight beginning in 2017, including the repeal of the Stream Protection Rule and weakened enforcement of air quality standards such as the Mercury and Air Toxics Standards and New Source Review. These changes lowered compliance costs and reduced delays associated with federal reviews, like the relaxed oversight of the oil and gas industry. Because the RMA dataset contains few coal borrowers, we cannot parallel the heterogeneity analyses we ran for oil and gas firms. We focus our main analysis on the oil and gas industry and use the coal sector only for supplemental validation tests.

Together, these policy shifts created an environment in which fossil fuel firms faced lower regulatory burdens and less public monitoring. Such reductions in oversight raised uncertainty about future environmental liabilities, compliance expectations, and the potential for abrupt policy reversals, thereby increasing the uncertainty faced by lenders when assessing credit risk.

Although the federal banking agencies issued Principles for Climate-Related Financial Risk Management in 2023, these principles were formally withdrawn in October 2025, with regulators noting that existing safety-and-soundness standards already require banks to manage all material risks (Federal Reserve Board 2025).[1] The brief and nonbinding status of this guidance highlights that U.S. supervisory expectations around climate risk did not evolve into a durable regulatory regime during our sample period.

2.2 Role of Financial Statements in Bank Lending

2.2.1 Screening and Monitoring

Lenders in private credit markets face significant information asymmetry regarding borrower creditworthiness. Borrowers possess information about their prospects that lenders do not observe, and information held by individual lenders is not shared broadly across the market (Sharpe 1990; Rajan 1992; Dell'Ariccia, Friedman, and Marquez 1999). To address these informational frictions, lenders rely on screening before extending credit and monitoring afterward. Screening involves collecting information to assess expected creditworthiness, while monitoring evaluates updated performance and compliance (Demerjian 2024). Recent theory emphasizes that lenders choose information acquisition intensity jointly for screening, monitoring, and contract design under uncertainty (Demerjian 2025).

Financial statements play a central role in both stages (Minnis 2011; Berger et al. 2017; Lisowsky, Minnis, and Sutherland 2017; Lisowsky and Minnis 2020; Minnis et al. 2024). Income and cash flow statements inform expected performance and liquidity, while balance sheets provide conservative measures of collateral and liquidation value (Watts 2003; Göx and Wagenhofer 2009;

[1] The SEC finalized climate-related disclosure rules for public companies in March 2024, but stayed their implementation and withdrew their legal defense in 2025, leaving them unenforced. While these rules applied only to public firms and do not affect our private-firm setting, they further illustrate the lack of a durable U.S. climate-risk disclosure regime during and after our sample period.

Kothari, Ramanna, and Skinner 2010). Covenant design research highlights the *ex-ante* role of accounting data, showing that riskier firms negotiate tighter covenants that forecast subsequent changes in accounting outcomes (Demiroglu and James 2010).

Periodic financial statements provide updated data used to monitor covenant compliance and adjust contractual terms. This process mitigates agency conflicts and improves debt contract efficiency (Christensen and Nikolaev 2012; Christensen, Nikolaev, and Wittenberg-Moerman 2016; Demerjian 2017; Dou 2020). Standard-setting priorities shape the monitoring role of financial reporting, with evidence that shifts toward balance-sheet emphasis and new standards alter covenant usefulness and design (Demerjian 2011; Demerjian, Donovan, and Larson 2016; Donovan, McMartin, and Phillips 2024).[2] Although most research focuses on public firms, similar mechanisms apply to private borrowers, where assurance choices are more flexible. Importantly, higher assurance does not provide environmental-specific data, but it strengthens lenders' confidence in the accuracy of core financial data when evaluating borrowers facing uncertain operating environments.

2.2.2 Financial Statements for Small and Medium-Sized Borrowers

Financial statements for private firms offer valuable information but impose costs, and their production, use, and timeliness vary widely in unregulated settings (Allee and Yohn 2009; Demerjian 2024; Minnis et al. 2024). Timeliness concerns are less severe for private borrowers, who lack alternative public information sources. Higher assurance levels are costly for private firms, with audit fees increasing in assurance, making audited statements relatively uncommon (Badertscher et al. 2023; Lisowsky and Minnis 2020). Nevertheless, lenders value audited

[2] More broadly, the declining role of accounting-based covenants in public debt contracting has been documented in prior work; see Zhu (2024) for a recent example and discussion.

statements because they credibly signal managerial integrity, governance quality, and future prospects (Blackwell et al. 1998; Minnis 2011; Kausar et al. 2016; Badertscher et al. 2023).

Heterogeneity in financial statement assurance makes banks' assurance requests a useful indicator of informational demand, with assurance type reflecting bargaining between lenders and borrowers (Minnis et al. 2024). The RMA dataset, used in Berger et al. (2017) and Minnis et al. (2024), does not differentiate data collected at screening from that during monitoring. Minnis and Sutherland (2017) show that lenders use financial statements in the monitoring stage.

Recent research shows that financial technology reduces banks' reliance on traditional data sources through advanced data availability and increased nonbank competition (Minnis et al. 2024; Sutherland 2018; Liberti, Sturgess, and Sutherland 2022). Despite these innovations, verified financial statements remain central to private lending, reinforcing the value of studying assurance levels as an outcome of banks' information acquisition.

2.3 Public and Private Monitoring Substitution

Economic theory predicts that private contracts adjust when regulatory oversight is inadequate (Cheung 1973; Coase 1960, 1974; Demsetz 1970). When public monitoring of borrowers is reduced, banks face greater uncertainty about borrower behavior and default risk and are likely to respond by increasing private monitoring as part of tighter credit standards.

Prior empirical work has primarily examined this substitution effect in settings where public monitoring is directed at banks rather than at borrowers. Black et al. (2004) show that during periods of heightened federal monitoring, banks reduce covenant use and covenant-covered debt, consistent with shareholders substituting regulatory monitoring for contractual restrictions. Studies exploiting interstate banking deregulation report similar reductions in reliance on contractual mechanisms (Hou et al. 2023; Basu et al. 2025). Bisetti (2024) provides the opposite comparative

static: reduced Federal Reserve surveillance leads banks to obtain costly internal audits, indicating increased private monitoring. Together, these studies show that banks adjust private monitoring intensity in response to changes in federal oversight.

Our setting differs in that the relevant changes in public monitoring apply directly to borrowers rather than to banks. When federal environmental oversight of oil and gas and coal firms is reduced, informational risk borne by banks increases, prompting tighter screening and monitoring. One observable dimension of this tightening is increased assurance demand, as higher-assurance financial statements provide more reliable inputs when borrowers' regulatory environments become uncertain. Third-party verification thus becomes an additional contractual tool, alongside covenants, for mitigating agency problems when public oversight is weakened.

2.4 Unintended Consequences of Regulations

The economic theory of regulation predicts that policies often generate unintended consequences, especially when they reflect political economy forces and interest-group influence rather than purely public-interest motives (Merton 1936; Stigler 1971; Posner 1974). In banking, regulatory policies can induce risk shifting or distortionary responses, such as increased portfolio risk or migration toward underregulated activities (Kim and Santomero 1988; Plantin 2015).

Empirical studies of regulation report many unintended effects: interstate banking deregulation increased bank competition but reduced firms' conditional conservatism and raised earnings smoothing (Huang 2021; Hou et al. 2023), while the JOBS Act increased information uncertainty without reducing audit fees as intended (Barth et al. 2017; Khurana and Zhao 2019).

These examples illustrate that regulatory rollbacks shift risk from regulated industries to lenders and other market participants. When oversight of fossil fuel firms declines, banks face greater uncertainty about borrowers' environmental liabilities and operational risks. We predict

that banks will respond by strengthening private monitoring tools, including by increasing the assurance level they require for borrower financial statements. This response likely represents an unintended consequence, as it raises the cost of debt for fossil-fuel borrowers.

2.5 Uncertainty-Induced Verification Hypothesis

We hypothesize that banks responded to the deregulation beginning in 2017 by tightening verification requirements for firms in industries affected by the rollback of environmental and energy regulations. Reduced federal oversight increased uncertainty about future compliance obligations, policy reversals, and environmental liabilities. Rather than seeking environmental information per se, banks responded by strengthening general credit scrutiny, for which higher-assurance financial statements provide a more reliable input.

Banks can tighten credit standards through pricing, quantities, or documentation. Prior research shows that financial statements are a key input into credit allocation and pricing (Minnis 2011; Berger et al. 2017); accordingly, we focus on the documentation channel and expect banks to require higher-assurance financial statements when lending to firms exposed to reduced environmental monitoring.

We formally state the Uncertainty-Induced Verification Hypothesis (H1) as follows:

H1 (Uncertainty-Induced Verification Hypothesis): Banks increase their demand for high-assurance financial statements when lending to fossil fuel firms after the 2017 deregulatory shift, reflecting a tightening of screening in response to increased regulatory uncertainty.

We consider two alternative explanations. First, emerging supervisory expectations regarding climate-related financial risks—such as broader attention to transition risk—could motivate banks to heighten scrutiny of fossil-fuel borrowers. However, such expectations apply nationally and cannot explain cross-regional variation in banks' responses.

Second, oil and gas borrowers may have performed poorly during this period. If industry distress were the primary mechanism, lenders should tighten documentation most sharply for small, risky firms. Our hypothesis predicts the opposite: tightening should be concentrated among large, more operationally complex firms, which face greater uncertainty from reduced oversight.

To distinguish H1 from these competing explanations, we examine heterogeneity by borrower size and regional variation in EPA enforcement. These tests, described in Section 4, let us evaluate whether observed changes in verification behavior align more closely with the uncertainty-induced verification hypothesis H1 or with alternative mechanisms.

3. Sample Selection and Empirical Design

3.1 Borrower Financial Statement Data

We obtain data summarizing the level of assurance on borrower financial statements from the Annual Statement Studies database maintained by the Risk Management Association (RMA). RMA is a not-for-profit organization that compiles commercial borrower data submitted by its member banks, which include community banks, regional banks, and national commercial banks. Participation is voluntary, but the dataset covers hundreds of institutions and provides a broad cross-section of the United States lending market.[3]

The RMA data provide a relatively unique view into the financial statements that banks obtain from private borrowers as part of both initial screening and ongoing monitoring. Prior studies, including Berger et al. (2017), Lisowsky et al. (2017), and Minnis et al. (2024), have used these data to show how bank expertise, credit cycle dynamics, and technological change influence banks' reliance on financial reporting in lending decisions. We follow this prior research in

[3] Examples of commercial banks that participated in the RMA's Annual Statement Studies of 2020 include Wells Fargo, Truist Bank, TD Bank, First Citizens Bank, Santander Bank, Citizens Financial Group, and Comerica Bank. See Berger, Minnis, and Sutherland (2017) for the frequency of bank participation.

interpreting the types of financial statements collected as a measure of banks' documentation requirements rather than voluntary borrower choices.

The dataset is aggregated at the industry-year-size level. Each observation includes the borrower's six-digit North American Industry Classification System (NAICS) code, a sales-based size category, financial ratios, the number of statements collected, and the distribution of financial statement types. Sales size is categorized into six dollar ranges: 0 to 1 million, 1 to 3 million, 3 to 5 million, 5 to 10 million, 10 to 25 million, and 25 million or more. We combine the four smallest categories (sales below $10 million) into a single group because these categories contain relatively few observations.

Banks classify financial statements into five mutually exclusive categories: unqualified audit, review, compilation, tax return, and other. Unqualified audits provide the highest verification: an independent auditor issues an unqualified opinion indicating the statements are fairly presented in accordance with GAAP, typically with full footnote disclosures. Reviews provide limited assurance based mainly on analytical procedures and management inquiries; they often include footnotes but offer substantially less verification than audits. Compilations provide no assurance: an accountant helps present management-provided information in financial-statement format, and compilations typically omit footnotes. Tax returns provide tax-basis financial data that vary by entity type and reporting choices, generally lack cash-flow statements and footnotes, and carry only weak verification (e.g., through IRS oversight rather than an audit opinion). Finally, Other captures remaining submissions, which are predominantly company-prepared, unaudited statements (with infrequently used items like qualified audits grouped into this residual category).

Following Lisowsky et al. (2017), we focus on the *Unqualified ratio*, defined as the proportion of unqualified audits among all financial statements collected in the industry-year-size group. Unqualified audits require the highest level of third-party assurance, are the costliest for borrowers, and indicate the strongest verification effort by lenders. We also construct parallel variables for the *Reviewed ratio*, *Compiled ratio*, *TaxRtrn ratio*, and *Other ratio*. These measures capture roughly decreasing levels of verification stringency as the level of attestation declines. The five ratios sum to one within each industry-year-size group.

We supplement the Statement Studies data with commercial loan performance data from RMA's Pooled Risk Database (PRD), which provides quarterly snapshots of bank loan portfolios. Using these data, we construct industry-year non-accrual loan rates, defined as the share of loans that are past due or no longer accruing interest due to borrower repayment problems. We merge this measure with the financial statement dataset to control for underlying differences in loan portfolio quality across industries and over time. Including non-accrual rates helps address concerns that increases in financial-statement verification could simply reflect industry-specific financial distress or deteriorating credit conditions rather than a response to changes in environmental oversight.

Because the data reflect financial statements obtained throughout the lending relationship and are aggregated at the industry-year-size level, our measures capture variation in the assurance levels that banks require from different borrower groups over time. Consistent with prior work using the RMA data, we interpret observed shifts in assurance composition as changes in banks' documentation and verification requirements, rather than as borrower-driven reporting choices. This interpretation allows us to test H1 using observed assurance outcomes as a proxy for bank-side demand for verification following environmental deregulation.

3.2 Sample Selection

Table 1, Panel A, shows our sample construction. We begin with financial statement data from 2011 through 2022. During this period, banks collected 1,747,253 financial statements, of which 236,810 were unqualified audits (13.55 percent). We drop industry-year-size groups with fewer than five total statements to reduce noise from very small groups, following prior research. This restriction does not differentially affect oil and gas borrowers after 2017. We exclude observations with missing financial ratios needed for the empirical analysis. The resulting dataset includes 1,695,653 statements and 232,550 unqualified audits (13.71 percent).

Table 1, Panel B, presents the industry distribution of statements, with Manufacturing, Wholesale Trade, Real Estate, Health Care, and Construction representing the largest industries. Table 2 shows that unqualified audits are rare among smaller firms (8.46 percent for firms with sales below $25 million) but substantially more common among larger firms (28.96 percent).

Figure 2 displays the number and proportion of each financial statement type collected over time. The number of statements declines across all categories, consistent with Minnis et al. (2024), who document a broad shift away from attested financial statements due to technological changes and increased competition from nonbank lenders. To address this common time trend, our empirical strategy focuses on relative changes within industries over time.

3.3 Empirical Design

To assess how banks' verification requirements changed around the 2017 environmental deregulation — which increased regulatory uncertainty for fossil-fuel borrowers — we estimate a difference-in-differences model of the following form:

$$Unqualified\ ratio_{i,j,t} = \beta\ (Post_t \times Treated_i) + \gamma X_{i,j,t} + \nu_i + \nu_j + \nu_t + \varepsilon_{i,j,t} \quad (1)$$

where *i* indexes industry, *j* indexes sales-size category, and *t* indexes year. These industry-year-size groups serve as our unit of analysis in the empirical tests.

The primary dependent variable is the *Unqualified ratio*, which measures the share of unqualified audited statements in the industry-year-size group. As discussed in Section 3.1, unqualified audits represent the highest level of third-party assurance. To provide a more complete view of how banks adjust verification practices, we also estimate the same specification using four additional dependent variables that capture progressively lower levels of attestation: *Reviewed ratio*, *Compiled ratio*, *TaxRtrn ratio*, and *Other ratio*. These secondary outcomes identify which verification categories decline as banks increase their reliance on unqualified audits.

Post equals one for years 2017 and later. *Treated* identifies oil and gas borrowers (NAICS 2111, 4471, 4571, and 4572), or coal borrowers (NAICS 2121) in supplemental analyses.[4] Controls include non-accrual rates and borrower financial ratios aggregated to the industry-year level and winsorized at the top and bottom one percent (see Appendix A for variable definitions).

The specification includes fixed effects for industry, sales-size category, and year. Because *Treated* is constant within industry, it is absorbed by industry fixed effects, and *Post* is absorbed by year fixed effects. Standard errors are clustered at the four-digit NAICS industry level.

The coefficient of interest is β on *Post* × *Treated*. A positive β in the *Unqualified ratio* regression indicates that banks increased their demand for higher-assurance financial statements from oil and gas borrowers after 2017, consistent with heightened verification in response to increased regulatory uncertainty. Negative coefficients for the lower-assurance ratios indicate that banks substituted away from these weaker forms of documentation.

[4] The most granular NAICS classification available in our version of the RMA dataset is the four-digit level. Therefore, we exclude NAICS code 3241 ("Petroleum and Coal Products Manufacturing") because it does not let us distinguish petroleum from coal at this level of detail.

3.4 Summary Statistics

Panel A of Table 3 reports descriptive statistics for the variables used in our analysis. The *Unqualified ratio* has a mean of 21.2 percent and a median of 17.3 percent, with substantial dispersion across industry-year-size groups. This variation is important for identification because banks differ meaningfully in the assurance levels they require across industry-size groups. Consistent with the declining use of attested financial statements documented in Minnis et al. (2024), the largest share of statements falls into the *Other* category, with a mean of 46.5 percent. The treated industries represent a small but stable portion of the sample, with oil and gas accounting for 0.8 percent of observations and coal for 0.1 percent. Borrower size is balanced across the sample, with 50.4 percent of observations classified as large firms. Finally, the *NonAccrual ratio* also shows wide variation (standard deviation of 8.5 percent), which supports our use of this measure to control for differences in underlying loan performance.

Panel B of Table 3 reports Pearson and Spearman correlations. The *Unqualified Ratio* is negatively correlated with the post-2017 period and exhibits near-zero correlations with Oil & Gas in the full sample. Pearson and Spearman correlations are generally similar in sign and magnitude, indicating that the relationships are approximately linear and not driven by strong nonlinearities. Correlations between statement-type ratios are negative because the five ratios must sum to one for each industry-size-region group.

3.5 Parallel Trend Assumption

We test the parallel trend assumption by replacing the *Post* indicator in Equation (1) with year dummies interacted with *Treated*. Figure 3 plots the resulting event-study coefficients, using 2017 as the baseline year. The pre-2017 coefficients are close to zero and statistically indistinguishable from zero, indicating no differential pre-trend in verification behavior between

treated and control industries. After 2017, the coefficients become positive and increase in magnitude, indicating a relative rise in banks' use of unqualified audits for oil and gas borrowers. This pattern is consistent with a treatment effect beginning in 2017 rather than a pre-existing divergence (i.e., the parallel trend assumption required for the difference-in-differences design).

4. Main Results

4.1 Verification Stringency for Oil & Gas Firms Post-Deregulation

Table 4 reports difference-in-differences estimates of banks' financial-statement verification stringency for oil and gas firms following the 2017 environmental deregulation shock. Column (1) uses the *Unqualified ratio* as the dependent variable. The coefficient on *Post* × *Oil & Gas* is 0.078 (t = 2.92, p < 0.01), indicating that banks increased their demand for unqualified audited financial statements by 7.8 percentage points when lending to oil and gas firms after 2017. This magnitude is economically meaningful: it corresponds to a 41% increase relative to the pre-2017 mean unqualified ratio for oil and gas firms (0.078/0.190). This finding is consistent with banks imposing more stringent documentation requirements on borrowers in an industry facing higher uncertainty about environmental risk and future regulation.

Columns (2) through (5) examine banks' use of lower-assurance verification reports, using the *Reviewed ratio*, *Compiled ratio*, *TaxRtrn ratio*, and *Other ratio* as dependent variables. The *Post* × *Oil & Gas* coefficients are -0.001 (t = -0.15, p > 0.10), -0.005 (t = -0.50, p > 0.10), -0.025 (t = -4.67, p < 0.01), and -0.045 (t = -1.89, p < 0.10), respectively. Although the declines for reviewed and compiled reports are small and statistically insignificant, banks significantly reduced their reliance on tax returns and other reports by 2.5 and 4.5 percentage points. These declines reflect substitution within verification types, rather than changes in lending volume, because the dependent variables are ratios conditional on the collection of financial statements. The increasing

magnitude of the negative coefficients across lower-assurance categories indicates that banks substituted away from the weakest verification methods while raising their reliance on high-assurance unqualified audits.

The results in Table 4 are consistent with our Uncertainty-Induced Verification Hypothesis (H1): when public oversight declines and regulatory uncertainty rises, banks respond by tightening private verification requirements. However, this baseline pattern is also consistent with two alternative explanations: (i) emerging supervisory emphasis on climate-risk exposure and (ii) general industry-level distress among oil and gas borrowers. We therefore turn to heterogeneity analyses to differentiate between these mechanisms. Because both alternative explanations also predict heightened scrutiny for oil and gas borrowers—through either elevated climate-risk supervision or elevated borrower risk—Table 4 alone is insufficient to distinguish mechanisms.

4.2 Size Heterogeneity: Large Oil & Gas Borrowers

Table 5 examines how the 2017 deregulation shock affected banks' verification standards differently by firm size, with particular focus on large oil and gas borrowers. *Large* is a dummy variable equal to one for firms with sales of 25 million dollars or more. Although these firms remain small relative to typical public companies, they are relatively large within our sample of small and medium-sized borrowers.

In Column (1), the coefficient on *Post* × *Large* is -0.049 (t = -12.02, $p < 0.01$), indicating that banks demanded 4.9 percentage points fewer unqualified audits from large firms after 2017. This decline is consistent with the trend toward less reliance on attested financial statements documented in Minnis et al. (2024) and alleviates concerns that banks simply lean more heavily on large borrowers' capacity to furnish audited reports. By contrast, the coefficient on *Post* × *Oil & Gas* is 0.015 (t = 2.17, $p < 0.05$), implying that small oil and gas firms provided 1.5 percentage

points more unqualified audits relative to control firms. The triple interaction *Post* × *Oil & Gas* × *Large* is 0.127 ($t = 3.12$, $p < 0.01$), indicating that large oil and gas firms experienced an additional 12.7 percentage point increase in unqualified audit demand. Consistent with economically meaningful size heterogeneity, allowing verification to vary by borrower size improves model fit relative to the baseline specification in Table 4, as reflected in higher adjusted R-squared values. Overall, the results in Column (1) indicate that, although banks generally reduced their requests for unqualified audited reports after 2017, they increased their requests for oil and gas firms, particularly for large oil and gas borrowers, by imposing substantially more stringent verification standards.

Columns (2) through (5) report analogous estimates for banks' collection of lower-assurance verification reports. For large firms overall, banks increased their collection of reviewed statements (*Post* × *Large* = 0.027, $t = 7.70$, $p < 0.01$), compiled statements (coef. = 0.031, $t = 14.82$, $p < 0.01$), and tax returns (coef. = 0.031, $t = 9.35$, $p < 0.01$), while reducing the use of other reports (coef. = -0.041, $t = -9.47$, $p < 0.01$). The Other category includes qualified audit reports (which are rarely used) that may signal potential distress, and management-prepared statements that lack third-party assurance. The increased use of tax returns for large oil and gas borrowers reflects reallocation within intermediate-assurance categories rather than substitution toward weaker verification, as the dominant shift is toward unqualified audits. Small oil and gas firms saw modest increases in reviews (*Post* × *Oil & Gas* = 0.029, $t = 2.30$, $p < 0.05$) but sharp declines in tax returns (coef. = -0.039, $t = -4.62$, $p < 0.01$) and other reports (coef. = -0.016, $t = -2.68$, $p < 0.01$). Large oil and gas firms experienced further tightening: the triple interaction implies an additional decline of 6.0 percentage points in reviews ($t = -7.12$, $p < 0.01$) and 3.8 percentage

points in compilations (t = -15.41, $p < 0.01$), coupled with a 2.9 percentage point increase in tax-return use (t = 3.24, $p < 0.01$).

This pattern suggests that, under regulatory uncertainty about environmental risks, banks curtailed the use of intermediate-assurance services for large oil and gas borrowers, including reviews, compilations, qualified opinions, and unaudited management-prepared reports. Instead, they intensified their reliance on high-quality unqualified audits and, to a lesser extent, on tax-return filings. Tax returns may help mitigate risk because they are legally mandated and subject to IRS audits and penalties, which create strong incentives for accurate reporting. Taken together, these findings indicate that post-2017 verification stringency varies along both firm size and industry-specific risk, with the strongest tightening for large oil and gas firms.

This size pattern is inconsistent with the industry-distress explanation, which predicts that small, risky firms should receive the greatest increase in verification requirements. Instead, we find that the tightening is concentrated among the largest borrowers in the sector, which is consistent with both H1 and a broader climate-risk supervisory emphasis.

4.3 EPA Enforcement Intensity

We next test whether banks increased their financial-statement verification standards more in regions with high EPA enforcement intensity after the 2017 environmental deregulation shock, which would be consistent with a substitution role between banks and public regulators. We collect EPA enforcement data for four air-related programs: the National Emissions Inventory, the Greenhouse Gas Reporting Program, the Toxics Release Inventory, and Clean Air Markets. We define enforcement intensity based on penalties per case and construct two cross-sectional indicators: (i) *HighEnf(Pre)*, equal to one for regions where pre-period (2011–2016) penalties per

case are above the cross-region mean, and (ii) *HighEnf(Pre–Post)*, equal to one for regions where the decline in penalties per case between the pre- and post-periods is above the cross-region mean.

Because the EPA data do not include facility-level sales, we conduct this analysis at the industry–year–region level using the RMA dataset and omit size buckets to avoid repeating the same regional enforcement values across multiple size categories. Instead, we include sales from the RMA data as a control to account for size effects. We also do not include *NonAccrual ratio* as a control, because the PRD performance measures are constructed at the core-based statistical area level and these regions often span multiple EPA enforcement regions, which creates ambiguity in mapping loan performance to enforcement intensity. Because of this geographic mismatch, we cannot directly measure region-specific borrower distress at the same level of aggregation as the EPA enforcement variables.

In Table 6, Panel A, we classify regions by high pre-period enforcement using *HighEnf(Pre)*. Consistent with tighter verification after the shock, the baseline interaction *Post* × *Oil & Gas* is associated with a 3.3 percentage point increase in unqualified statements collected ($t = 7.20$, $p < 0.01$) and a 4.7 percentage point decrease in other reports ($t = -4.11$, $p < 0.01$), with no statistically significant changes in reviewed, compiled, or tax return statements. The triple interaction *Post* × *Oil & Gas* × *HighEnf(Pre)* indicates that, in high-enforcement regions, banks shift further toward higher assurance: the collection of unqualified statements rises an additional 3.0 percentage points ($t = 1.90$, $p < 0.10$), while the collection of tax returns falls by an additional 4.0 percentage points ($t = -2.62$, $p < 0.01$). Effects on reviewed and other reports are statistically indistinguishable from zero. We observe a small 2.1 percentage point increase in compiled reports ($t = 1.73$, $p < 0.10$), which is best interpreted as minor reallocation within intermediate-assurance categories rather than a reversal of the overall tightening pattern.

Panel B tests whether banks respond more strongly where EPA enforcement relaxed the most after 2017, using *HighEnf(Pre–Post)* to capture regions with large post-shock reductions in penalties per case. The coefficient on *Post* × *Oil & Gas* again indicates tighter verification for oil and gas borrowers: the unqualified category rises by 4.2 percentage points (t = 5.28, $p < 0.01$), compiled falls slightly by 0.6 percentage points (t = -2.19, $p < 0.05$), and the residual other category declines by 5.0 percentage points (t = -2.50, $p < 0.05$). The coefficients on *Post* × *HighEnf(Pre–Post)* suggest that regions experiencing larger enforcement relaxation exhibit a general reallocation away from unqualified and reviewed reports and toward tax returns: *Unqualified ratio* -2.3 percentage points (t = -7.37, $p < 0.01$), *Reviewed ratio* -1.1 percentage points (t = -4.85, $p < 0.01$), and *TaxRtrn ratio* +3.3 percentage points (t = 11.34, $p < 0.01$), consistent with weaker public monitoring and less demanding documentation overall. Crucially, the triple interaction *Post* × *Oil & Gas* × *HighEnf(Pre–Post)* reverses that pattern for oil and gas borrowers: in high-relaxation regions, the demand for unqualified reports increases an additional 1.2 percentage points (t = 1.68, $p < 0.10$), while the demand for tax returns falls an additional 5.4 percentage points (t = -7.43, $p < 0.01$). Effects on reviewed, compiled, and other reports are statistically indistinguishable from zero.

In sum, the evidence in Table 6 shows that across both definitions of enforcement intensity, high pre-shock enforcement and large post-shock relaxations, banks tighten financial-statement verification for oil and gas borrowers after 2017. The tightening is strongest where historic enforcement was stricter or where public enforcement subsequently relaxed, which is consistent with banks substituting toward private verification when public monitoring of borrowers weakens.

These region-specific enforcement interactions are difficult to reconcile with the alternative explanations discussed in Section 2.5. First, bank-regulator pressure to reduce fossil-fuel lending would apply nationally and therefore cannot explain why verification tightening is

disproportionately concentrated in regions with high pre-shock EPA enforcement or large post-shock enforcement relaxations. Second, an industry-distress explanation would require region-specific variation in borrower fundamentals that is systematically aligned with EPA enforcement intensity. Although we cannot directly test this alignment because of the geographic mismatch described above, the concentration of verification tightening in regions with historically strict enforcement or large post-2017 enforcement relaxations is difficult to reconcile with industry-distress explanations. The observed heterogeneity aligns closely with H1, which implies tighter private verification exactly where public monitoring declined.

4.4 Summary of Main Results

In combination, the results from Tables 4–7 demonstrate that while baseline increases in verification for oil and gas borrowers could also arise under broader supervisory attention to climate-risk exposure, the size heterogeneity patterns contradict the industry-distress explanation, and the EPA-enforcement interactions rule out the regulator-pressure explanation. Only H1 is consistent with the full set of findings. These findings show that private lenders internalize gaps in environmental oversight by requiring greater third-party assurance, highlighting an important unintended consequence of environmental deregulation for credit markets.

5. Additional Analyses

5.1 Banks' Verification Response in the Coal-Mining Sector

Table 7 reports difference-in-differences estimates for coal-mining borrowers, another sector characterized by high environmental risks and regulatory uncertainty. As discussed in Section 3, the number of coal observations in the RMA dataset is substantially smaller than in the oil and gas sector, which prevents us from conducting the heterogeneity analyses used in Section

4 and limits power for more granular tests. We therefore treat the coal results as a targeted supplemental test rather than a full parallel analysis.

In Column (1), the coefficient on *Post* × *Coal* is 0.149 ($t = 14.91$, $p < 0.01$), indicating that banks requested 14.9 percentage points more unqualified audits from coal-mining firms after 2017 relative to non-coal peers. Column (2) shows no significant change in reviewed statements (coef. = 0.000, $t = 0.04$, $p > 0.10$), while Column (3) reveals a 4.1 percentage-point decrease in compiled reports ($t = -6.65$, $p < 0.01$). In Column (4), the effect on tax-return filings is small and statistically insignificant (coef. = 0.006, $t = 0.57$, $p > 0.10$). Column (5) shows that banks curtailed their reliance on other reports by 11.2 percentage points ($t = -8.60$, $p < 0.01$), consistent with a withdrawal from the weakest assurance types.

These results suggest that, in the wake of deregulation, banks reacted to heightened environmental and regulatory uncertainty in the coal sector by sharply increasing their demand for high-assurance unqualified audits and reducing their reliance on low-assurance verification, particularly compiled statements and other internally generated or distress-associated reports. Although sample limitations preclude detailed heterogeneity tests, the coal-sector patterns closely mirror those documented for oil and gas borrowers and support the broader interpretation of H1 across fossil-fuel industries.

5.2 Credit-Market Consequences: Loan Volumes and Loan Pricing

The preceding sections document that banks intensified their financial-statement verification requirements for fossil-fuel borrowers after 2017. A natural question is whether this tightening of documentation is also reflected in broader credit-market outcomes. Under H1 (Uncertainty-Induced Verification), heightened verification is part of a broader increase in perceived borrower risk when public oversight weakens, which may also manifest in reduced

credit supply or higher loan prices (as documented for public firms in related settings; see Chava 2014; Delis et al. 2024). However, these credit outcomes are not uniquely diagnostic: both alternative explanations—supervisory climate-risk emphasis and industry-level distress—could also generate reductions in lending or increases in spreads. We therefore view the following tests as supportive but not mechanism-identifying evidence.

Table 8 uses PRD loan-count data to assess whether total lending to fossil-fuel borrowers declined after 2017. To align the sample with RMA firm sizes, we analyze business-banking borrowers with sales under 20 million dollars and middle-market borrowers with sales between 20 and 200 million dollars. The dependent variable is *ln(LoanNum)*, the natural log of the number of loans in each industry-year. We control for *NonAccrual ratio*, the lagged share of loans in non-accrual status. Column (1) shows that *Post* × *Oil & Gas* = -0.461 (t = -3.79, $p < 0.01$), implying roughly a 46 percent decline in loan counts to oil and gas borrowers after 2017. Column (2) reports an even larger contraction for coal firms: *Post* × *Coal* = -0.599 ($t = -13.36$, $p < 0.01$), or about a 60 percent decline. In both specifications, *NonAccrual ratio* ≈ -0.91 (t = -3.39 for *Oil & Gas*, t = -3.36 for *Coal*, $p < 0.01$ for both), indicating that industries experiencing higher non-accrual rates saw disproportionately greater reductions in lending. These patterns complement our RMA findings: banks not only requested more stringent verification from fossil-fuel borrowers but also reduced their credit exposure to these sectors following deregulation.

Table 9 turns to loan pricing using DealScan data on private borrowers. This dataset allows us to study both cross-sectional pricing and within-loan repricing after 2017. The dependent variable is *Spread*, the interest margin over LIBOR. Controls include loan size, loan maturity, collateralization, and lagged non-accrual rates. Columns (1) and (2) show that spreads increased sharply for fossil-fuel borrowers after deregulation: *Post* × *Oil & Gas* = 0.484 (t = 4.72, $p < 0.01$)

and *Post* × *Coal* = 0.826 (t = 2.81, p < 0.01), corresponding to 48-83 basis-point increases in pricing. Columns (3) and (4) add loan-level fixed effects, isolating within-loan repricing. The effects remain positive and statistically significant, though smaller: 0.324 for oil & gas (t = 2.60, p < 0.01) and 0.375 for coal (t = 12.78, p < 0.01). These estimates indicate that banks actively repriced existing facilities to incorporate higher environmental-risk premia, rather than simply issuing new loans at higher spreads.

Taken together, the PRD and DealScan results show that fossil-fuel borrowers faced both higher verification and worse credit terms following the 2017 deregulation shock. These findings reinforce the economic significance of our main results and demonstrate that changes in verification requirements coincided with broader tightening in credit supply and pricing. However—and consistent with our identification strategy—these credit responses do not distinguish H1 from the alternative explanations. They should be viewed as external validation that banks' response to deregulation was economically meaningful, rather than as evidence about the mechanism itself. The mechanism-identifying evidence comes from the heterogeneity analyses in Section 4, particularly the EPA-based tests.

5.3 Verification Standards During the Biden Administration (2021–2022)

Finally, we examine whether banks relaxed financial-statement verification requirements during the initial years of the Biden administration (2021–2022), a period associated with more climate-focused federal policy. We do not observe a meaningful decline in verification stringency for oil and gas borrowers during these years (untabulated).

This null result is informative. Although the Biden administration signaled a shift in climate priorities, enforcement activity did not return to pre-2017 levels. As shown in Figure 1, the most substantial changes affecting operational oversight—EPA enforcement intensity—were

sharply reduced during 2017–2020 and were only partially and inconsistently restored thereafter. Because our mechanism (H1) predicts that banks respond to actual enforcement intensity, not rhetorical shifts or proposed rulemaking, the persistence of heightened verification standards through 2022 is consistent with continued weakness in federal environmental enforcement.

Moreover, once banks had adapted their screening and monitoring practices in response to the 2017 shock, these verification norms may have become "sticky." In a context of ongoing legal and political uncertainty and lingering pandemic-related disruptions, banks may have had little incentive to revert to pre-2017 verification practices.

5.4 Robustness Checks

We verify that our results are not sensitive to alternative specifications or sample construction. Re-estimating Equation (1) with industry-by-size fixed effects or with industry-by-size-by-year fixed effects yields nearly identical estimates (untabulated). We also re-define control samples using nearest-neighbor matching, propensity-score matching, and by excluding coal (or oil and gas) firms from the control group; our main inferences remain unchanged. Combining oil and gas and coal into a single fossil-fuel treatment group produces similar effects. These results indicate that the findings are not driven by specification choice or sample composition.

6. Conclusion

This study examines how U.S. banks adjusted their credit evaluation practices following the major shift in federal environmental and energy policy beginning in 2017. Using proprietary data on the financial statements that private firms provide to lenders for screening and monitoring, we show that banks increased their demand for high-assurance reporting—specifically unqualified audits—for oil and gas borrowers after the deregulatory shock. The tightening is concentrated among larger firms and in regions where EPA enforcement had historically been strict or declined

most after 2017. These patterns are difficult to reconcile with industry distress or with nationwide supervisory attention to climate-related risks; instead, they support an uncertainty-induced verification mechanism in which banks strengthen private monitoring when public oversight weakens. Results for the coal sector provide consistent supplemental evidence.

We further document economic consequences: fossil-fuel borrowers experienced reductions in loan volumes and increases in loan spreads after 2017, indicating that higher assurance requirements were part of a broader reassessment of borrower risk. Although not mechanism-identifying, these credit-market responses corroborate the economic significance of the shift in verification standards.

Overall, the findings highlight deregulation as an important driver of lenders' information-acquisition choices. They extend research on financial reporting in private debt markets by showing that banks increase assurance demands when external monitoring diminishes, and they contribute to the emerging literature on environmental risk by demonstrating monitoring adjustments even in the absence of public ESG disclosure mandates. A key policy implication is that environmental deregulation can unintentionally raise the cost of debt for affected firms by shifting informational burdens from regulators to lenders and prompting tighter private verification. From the firm's perspective, the net effect of deregulation depends on whether reduced compliance and enforcement costs outweigh the higher financing costs associated with more stringent private monitoring. Quantifying this tradeoff is an important direction for future research.

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Appendix A: Variable Definitions

Dependent Variable

Unqualified ratio	Ratio of unqualified audited financial statements to total financial statements collected by banks (Source: RMA)
Reviewed ratio	Ratio of reviewed statements to total financial statements collected by banks (Source: RMA)
Compiled ratio	Ratio of compiled statement to total financial statements collected by banks (Source: RMA)
TaxRtrn ratio	Ratio of tax returns to total financial statements collected by banks (Source: RMA)
Other ratio	Ratio of other statements (mostly company-prepared statements and qualified audit reports) to total financial statements collected by banks (Source: RMA)
ln(LoanNum)	Natural log of the number of loans (Source: PRD)
Spread	Loan spread over LIBOR expressed in percentage points (Source: DealScan)

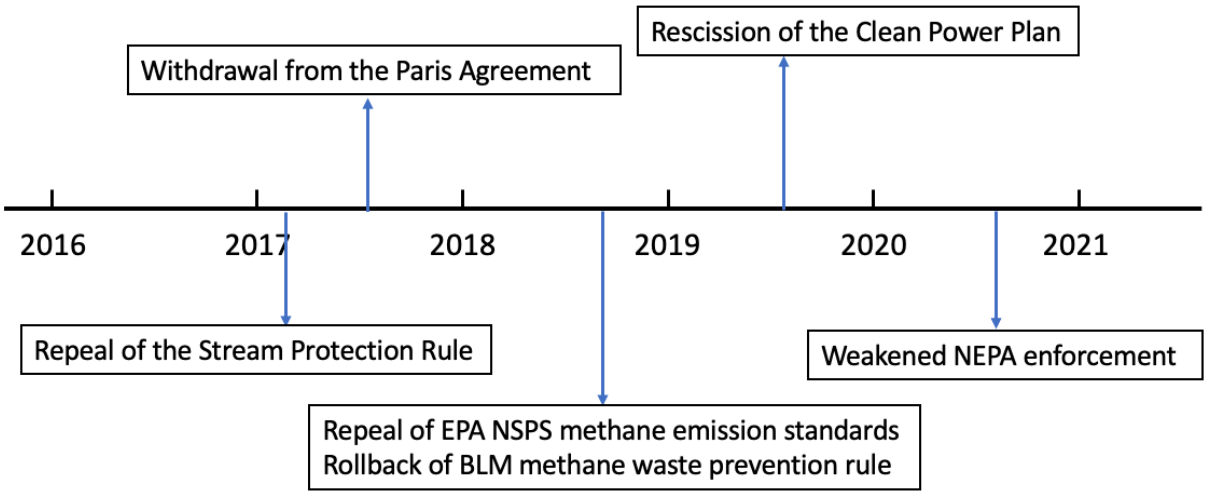
Independent Variables

Post	Dummy variable equal to 1 for years from 2017 onward
Oil & Gas	Dummy variable equals to 1 for borrowers in the oil and gas industry (NAICS codes 2111, 4471, 4571, and 4572)
Large	Dummy variable equals to 1 for borrowers with sales of $25 million or more (Source: RMA)
Coal	Dummy variable equal to 1 for borrowers operating in the coal industries (NAICS code 2121)
HighEnf(Pre)	Dummy variable equal to 1 if the pre-shock (2011–2016) average of penalties per case exceeds the relevant mean across regions
HighEnf(Pre-Post)	Dummy variable equal to 1 if the region's (Pre − Post) change in penalties per case exceeds the relevant mean across regions

Control Variables

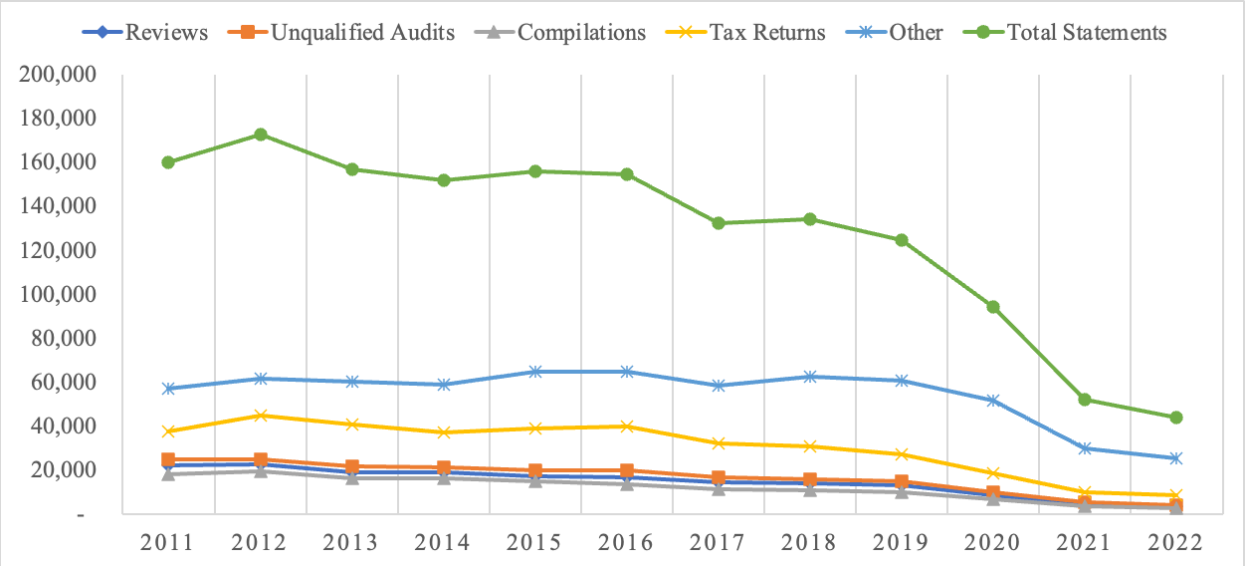
NonAccrual ratio	Ratio of non-accrual loans to total loans in the previous year (Source: PRD)
ROA	Ratio of profit before tax to sales (Source: RMA)
Leverage	Ratio of total debt to total assets (Source: RMA)
Current ratio	Ratio of current assets to current liabilities (Source: RMA)
ln(TrancheAmount)	Natural log of the loan tranche amount (Source: DealScan)
ln(Maturity)	Natural log of the loan maturity (tenor) in months (Source: DealScan)
Collateral	Dummy variable equal to 1 if loan is secured by collateral (Source: DealScan)
ln(Sales)	The natural logarithm of sales in thousands (Source: RMA)

Figure 1: Key Rollbacks and Milestone Events



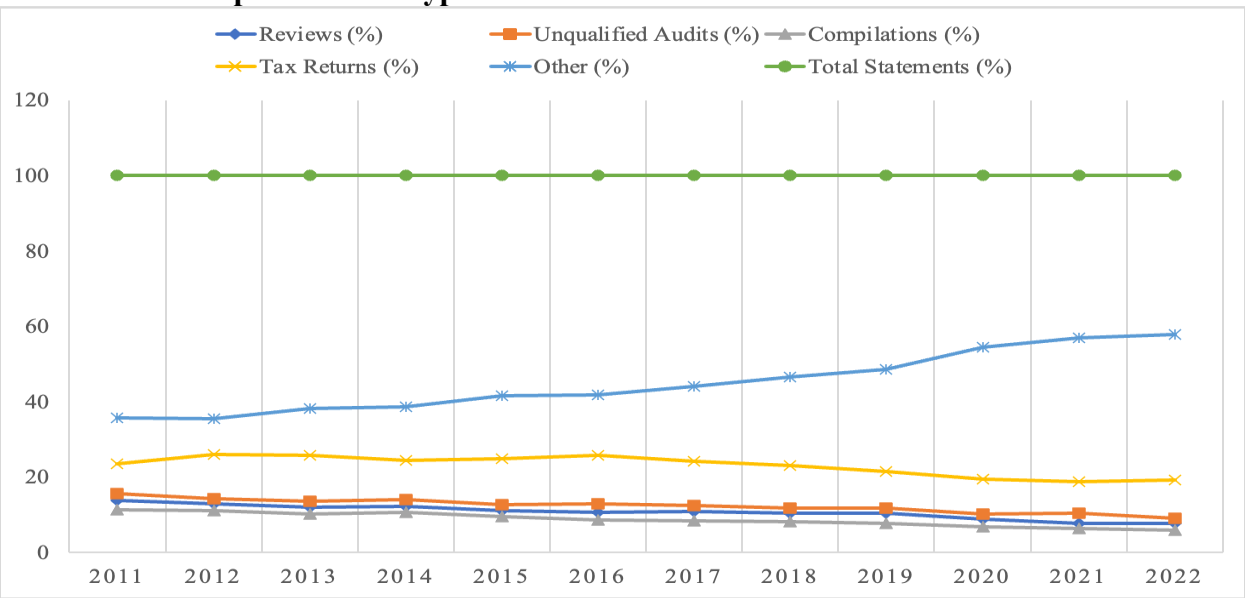
Notes: This figure shows several important changes in environmental regulations affecting fossil fuel industries after 2017.

Figure 2: Statements Collected over the Years
Panel A: The Number and Type of Statements Collected



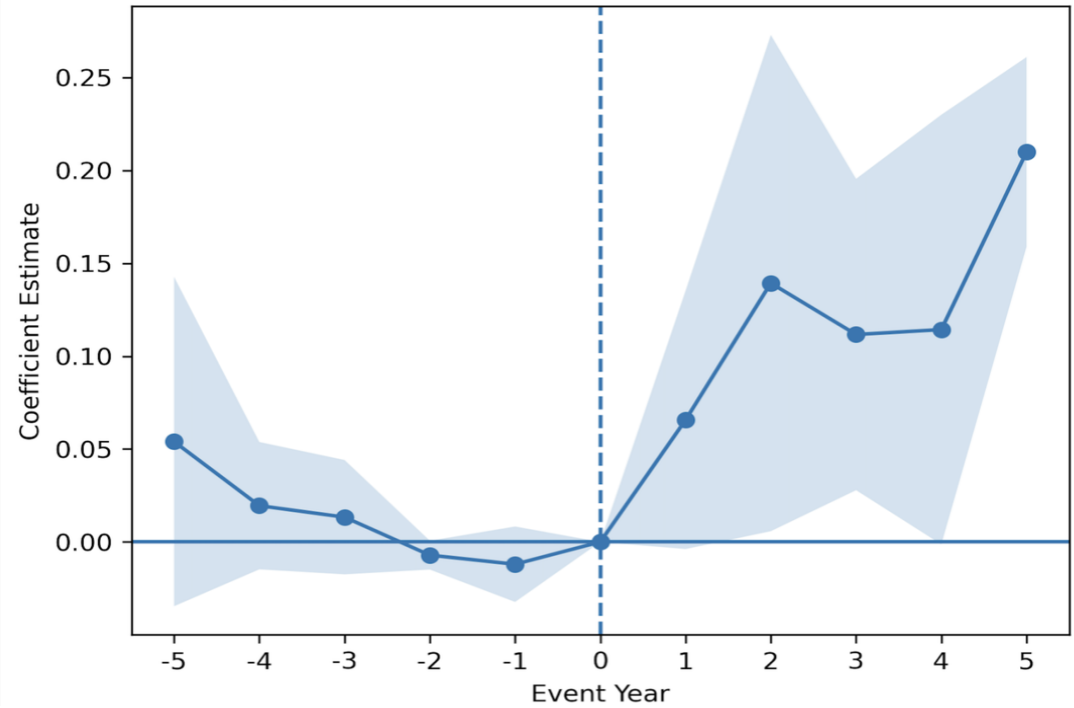
Notes: This line chart shows the number of statements collected from banks for each financial report category: unqualified audits, reviews, compilations, tax returns, and others, over the years. The main dependent variable, *Unqualified ratio*, the ratio of unqualified audited financial statements to the total financial statements collected by banks, is represented by the orange line. The green line represents the total number of statements across the five categories of reports over the years.

Panel B: The Proportion and Type of Statements Collected



Notes: This line chart shows the proportion of statements collected from banks for each financial report category: unqualified audits, reviews, compilations, tax returns, and others, over the years. The main dependent variable, *Unqualified ratio*, the ratio of unqualified audited financial statements to the total financial statements collected by banks, is represented by the orange line.

Figure 3: Event Study Coefficient Plot: Unqualified Ratios for Oil & Gas (Treated) Borrowers



Notes: This figure presents event-study estimates of the difference in unqualified ratios between treated oil and gas firms (NAICS codes 2111, 4471, 4571, and 4572) and control firms, relative to the baseline year (event year 2017). The solid line represents coefficient estimates for each event year, and the shaded area denotes the 95% confidence interval.

Table 1

Panel A: Sample Selection (Source: RMA)

	Unqualified Audits (1)	Total Statements (2)	Unqualified Ratio (%) (3)
Borrower financial documents collected between 2011 and 2022	236,810	1,747,253	13.553
Less: Industry-year-size observations with fewer than five statements collected	(173)	(677)	25.554
Less: Observations with missing required financial ratios	(4,087)	(50,923)	8.026
Final sample	232,550	1,695,653	13.714

Notes: This table provides details of our sample selection procedure. We start by identifying the type and number of borrower financial documents collected by RMA member banks from 2011 to 2022. We then drop industry-year-size observations if there are fewer than five statements collected. Finally, we exclude observations with missing financial ratios required for regression analyses. Columns (1) and (2) report the total number of unqualified audit reports and the total number of financial statements collected, respectively. Column (3) presents the ratio of unqualified audit reports to total financial statements.

Panel B: Industry Distributions (Presented at NAICS 2-digit level)

		Total Statements from 2011 to 2022
11	Agriculture, Forestry, Fishing and Hunting	26,899
21	Mining, Quarrying, and Oil and Gas	12,556
22	Utilities	8,171
23	Construction	149,014
31-33	Manufacturing	240,238
42	Wholesale Trade	201,482
44-45	Retail Trade	143,831
48-49	Transportation and Warehousing	59,491
51	Information	15,960
52	Finance and Insurance	39,454
53	Real Estate and Rental and Leasing	183,532
54	Professional, Scientific, and Technical Services	147,382
55	Management of Companies and Enterprises	7,381
56	Administrative and Support and Waste Management and Remediation Services	51,604
61	Educational Services	34,840
62	Health Care and Social Assistance	163,460
71	Arts, Entertainment, and Recreation	27,307
72	Accommodation and Food Services	87,042
81	Other Services (except Public Administration)	83,902
92	Public Administration	12,107
Total		1,695,653

Notes: This table reports the industry distribution in our sample, classified by NAICS 2-digit codes.

Table 2: Statements Collected by Borrowers Sales

	$0-25 million	≥ $25 million	Total
Total Statements Collected	1,260,620	435,033	1,695,653
Unqualified Audits	106,585	125,965	232,550
Reviews	126,307	61,326	187,633
Compilations	139,086	17,757	156,843
Tax Returns	371,988	14,013	386,001
Other	516,654	215,972	732,626
Unqualified Audits (%)	8.455	28.955	13.714
Reviews (%)	10.019	14.097	11.066
Compilations (%)	11.033	4.082	9.250
Tax Returns (%)	29.508	3.221	22.764
Other (%)	40.984	49.645	43.206
Industry-year-size observations	2,719	2,768	5,487
Industry-year-size observations (%)	49.553	50.447	100.000

Notes: This table reports the count and proportion of each of the five types of financial statements (unqualified audits, reviews, compilations, tax returns, and others) collected from borrowers, broken down by two sales categories—below $25 million and at least $25 million. It also shows the number of observations at the industry-year-size level for each size group.

Table 3: Summary Statistics

Panel A: Descriptive Statistics (N = 5,487)

	Mean	S.D.	1%	5%	25%	50%	75%	95%	99%
Unqualified ratio	0.212	0.197	0.000	0.010	0.047	0.173	0.304	0.642	0.836
Reviewed ratio	0.120	0.085	0.000	0.000	0.048	0.112	0.176	0.275	0.354
Compiled ratio	0.072	0.060	0.000	0.000	0.024	0.058	0.113	0.187	0.235
TaxRtrn ratio	0.129	0.138	0.000	0.000	0.015	0.071	0.218	0.418	0.531
Other ratio	0.465	0.133	0.134	0.246	0.373	0.466	0.557	0.684	0.787
Post	0.457	0.498	0.000	0.000	0.000	0.000	1.000	1.000	1.000
Oil & Gas	0.008	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Large	0.504	0.500	0.000	0.000	0.000	1.000	1.000	1.000	1.000
Coal	0.001	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NonAccrual ratio	0.126	0.085	0.004	0.023	0.065	0.109	0.168	0.286	0.391
ROA	0.073	0.051	-0.010	0.007	0.037	0.069	0.098	0.160	0.290
Leverage	0.240	0.107	0.026	0.071	0.174	0.234	0.289	0.452	0.574
Current ratio	1.617	0.471	0.646	0.945	1.348	1.582	1.799	2.405	3.721

Notes: Variables are defined in Appendix A.

Panel B: Correlation Coefficients for Key Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Unqualified ratio (1)		**-0.348**	**-0.618**	**-0.633**	**-0.317**	**-0.134**	-0.002
Reviewed ratio (2)	**-0.216**		**0.276**	**-0.111**	**-0.135**	**-0.139**	**-0.060**
Compiled ratio (3)	**-0.702**	**0.304**		**0.567**	**-0.302**	**-0.152**	0.010
TaxRtrn ratio (4)	**-0.772**	0.013	**0.667**		**-0.290**	**-0.038**	0.019
Other ratio (5)	**-0.073**	**-0.097**	**-0.296**	**-0.290**		**0.392**	0.020
Post (6)	**-0.142**	**-0.132**	**-0.128**	-0.013	**0.409**		0.004
Oil & Gas (7)	-0.005	**-0.064**	0.019	0.007	0.011	0.004	

Notes: Variables are defined in Appendix A.
Pearson (Spearman rank) correlation coefficients are above (below) the diagonal.
Correlation coefficients in **bold** are significant at $p < 0.01$.
Correlation coefficients in *italics* are significant at $p < 0.10$.
Correlation coefficients in regular font are insignificant ($p > 0.10$).

Table 4: Difference-in-Differences Estimates of Bank Verification Stringency for Oil & Gas Firms from 2017 Onward

	(1) *Unqualified ratio*	(2) *Reviewed ratio*	(3) *Compiled ratio*	(4) *TaxRtrn ratio*	(5) *Other ratio*
Post × Oil & Gas	0.078***	-0.001	-0.005	-0.025***	-0.045*
	(2.919)	(-0.152)	(-0.496)	(-4.666)	(-1.893)
NonAccrual ratio	0.081***	-0.061**	-0.002	-0.057	0.036
	(3.026)	(-2.036)	(-0.118)	(-1.634)	(1.004)
ROA	0.073	0.015	0.034	0.099*	-0.219***
	(1.527)	(0.472)	(1.233)	(1.957)	(-4.194)
Leverage	-0.031	-0.115***	-0.033***	0.093***	0.069*
	(-0.970)	(-5.222)	(-2.597)	(2.609)	(1.872)
Current ratio	0.015***	0.001	-0.001	-0.005	-0.010
	(2.870)	(0.351)	(-0.490)	(-0.678)	(-1.461)
Constant	0.180***	0.152***	0.080***	0.114***	0.476***
	(14.447)	(14.044)	(12.929)	(6.604)	(29.077)
N	5,487	5,487	5,487	5,487	5,487
Adj R-sq	0.898	0.648	0.679	0.810	0.687
Within Adj R-sq	0.015	0.024	0.004	0.021	0.014
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Size FE	Yes	Yes	Yes	Yes	Yes

Notes: The main dependent variable, *Unqualified ratio*, is the ratio of unqualified audited financial statements to the total number of financial statements collected by banks. Other dependent variables *Reviewed ratio*, *Compiled ratio*, *TaxRtrn ratio*, and *Other ratio* reflect the ratios of reviewed statements, compiled statements, tax returns, and other statements (mostly company-prepared statements and qualified audit reports), respectively, to the total number of financial statements collected. These five dependent variables represent progressively lower levels of stringency in financial statement verification by banks. *Post* is a dummy variable equal to 1 for years from 2017 onward. *Oil & Gas* is a dummy variable equal to 1 for firms operating in the oil and gas industries (NAICS codes 2111, 4471, 4571, and 4572). Standard errors clustered at the NAICS 4-digit industry level are used to calculate the *t*-statistics reported in parentheses. ***, **, and * indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix A.

Table 5: Difference-in-Differences Estimates of Bank Verification Stringency for Large Oil & Gas Firms from 2017 Onward

	(1) *Unqualified ratio*	(2) *Reviewed ratio*	(3) *Compiled ratio*	(4) *TaxRtrn ratio*	(5) *Other ratio*
Post × Large	-0.049***	0.027***	0.031***	0.031***	-0.041***
	(-12.020)	(7.696)	(14.817)	(9.348)	(-9.474)
Post × Oil & Gas	0.015**	0.029**	0.014	-0.039***	-0.016***
	(2.167)	(2.303)	(1.117)	(-4.618)	(-2.682)
Post × Oil & Gas × Large	0.127***	-0.060***	-0.038***	0.029***	-0.057
	(3.117)	(-7.122)	(-15.412)	(3.238)	(-1.008)
NonAccrual ratio	0.063**	-0.051*	0.009	-0.046	0.021
	(2.385)	(-1.695)	(0.511)	(-1.333)	(0.582)
ROA	0.070	0.016	0.036	0.103**	-0.223***
	(1.521)	(0.499)	(1.331)	(2.024)	(-4.225)
Leverage	-0.014	-0.123***	-0.043***	0.082**	0.081**
	(-0.446)	(-5.505)	(-3.439)	(2.305)	(2.162)
Current ratio	0.014***	0.003	-0.000	-0.004	-0.012*
	(2.652)	(0.656)	(-0.003)	(-0.579)	(-1.714)
Constant	0.192***	0.144***	0.071***	0.107***	0.489***
	(15.602)	(13.503)	(11.844)	(6.357)	(29.297)
N	5,487	5,487	5,487	5,487	5,487
Adj R-sq	0.902	0.655	0.697	0.813	0.694
Within Adj R-sq	0.055	0.045	0.060	0.039	0.037
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Size FE	Yes	Yes	Yes	Yes	Yes

Notes: The main dependent variable, *Unqualified ratio*, is the ratio of unqualified audited financial statements to the total number of financial statements collected by banks. Other dependent variables *Reviewed ratio*, *Compiled ratio*, *TaxRtrn ratio*, and *Other ratio* reflect the ratios of reviewed statements, compiled statements, tax returns, and other statements (mostly company-prepared statements and qualified audit reports), respectively, to the total number of financial statements collected. These five dependent variables represent progressively lower levels of stringency in financial statement verification by banks. *Post* is a dummy variable equal to 1 for years from 2017 onward. *Oil & Gas* is a dummy variable equal to 1 for firms operating in the oil and gas industries (NAICS codes 2111, 4471, 4571, and 4572). *Large* is a dummy variable that equals one for firms with sales of $25 million or more. Standard errors clustered at the NAICS 4-digit industry level are used to calculate the *t*-statistics reported in parentheses. ***, **, and * indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix A.

Table 6: Difference-in-Differences Estimates of Bank Verification Stringency for Oil & Gas Firms by EPA Enforcement Intensity

Panel A: Enforcement intensity defined in the pre-shock period (2011–2016)

	(1) *Unqualified ratio*	(2) *Reviewed ratio*	(3) *Compiled ratio*	(4) *TaxRtrn ratio*	(5) *Other ratio*
Post×Oil & Gas	0.033***	0.011	-0.005	0.009	-0.047***
	(7.201)	(1.520)	(-0.869)	(0.974)	(-4.111)
Post×HighEnf(Pre)	0.000	0.001	-0.000	0.002	-0.003
	(0.147)	(0.689)	(-0.246)	(0.690)	(-0.856)
Oil & Gas×HighEnf(Pre)	-0.006	-0.007	0.003	0.010	-0.000
	(-0.571)	(-0.531)	(0.168)	(0.477)	(-0.006)
Post×Oil & Gas ×HighEnf(Pre)	0.030*	0.000	0.021*	-0.040***	-0.011
	(1.897)	(0.036)	(1.733)	(-2.623)	(-0.238)
ROA	-0.005	0.019	-0.006	0.036**	-0.042
	(-0.185)	(1.125)	(-0.499)	(2.045)	(-1.571)
Leverage	0.036**	-0.000	-0.011	-0.043***	0.011
	(2.459)	(-0.031)	(-1.642)	(-3.116)	(0.708)
Current ratio	0.007**	0.005**	0.002	-0.004	-0.009**
	(1.989)	(2.380)	(1.065)	(-1.127)	(-2.314)
ln(Sales)	0.020***	0.003*	-0.005***	-0.024***	0.007**
	(7.016)	(1.650)	(-3.598)	(-9.945)	(2.577)
Constant	-0.141***	0.053*	0.153***	0.543***	0.363***
	(-3.370)	(1.672)	(8.114)	(14.972)	(9.051)
N	14,128	14,128	14,128	14,128	14,128
Adj R-sq	0.820	0.656	0.452	0.740	0.634
Within Adj R-sq	0.027	0.003	0.005	0.042	0.004
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes

Panel B: Enforcement intensity defined by relaxation (pre-post)

	(1) *Unqualified ratio*	(2) *Reviewed ratio*	(3) *Compiled ratio*	(4) *TaxRtrn ratio*	(5) *Other ratio*
Post×Oil & Gas	0.042***	0.007	-0.006**	0.007	-0.050**
	(5.281)	(1.179)	(-2.189)	(0.487)	(-2.501)
Post×HighEnf(Pre-Post)	-0.023***	-0.011***	-0.000	0.033***	0.001
	(-7.365)	(-4.848)	(-0.032)	(11.338)	(0.217)
Oil & Gas×HighEnf(Pre-Post)	0.007	-0.008	0.011	-0.012	0.002
	(0.179)	(-0.457)	(0.370)	(-1.503)	(0.113)
Post×Oil & Gas × HighEnf(Pre-Post)	0.012*	0.012	0.036	-0.054***	-0.005
	(1.682)	(0.980)	(1.484)	(-7.430)	(-0.149)
ROA	-0.001	0.021	-0.006	0.031*	-0.042
	(-0.024)	(1.234)	(-0.512)	(1.769)	(-1.582)
Leverage	0.036**	-0.000	-0.011*	-0.043***	0.011
	(2.465)	(-0.006)	(-1.658)	(-3.129)	(0.707)
Current ratio	0.008**	0.005**	0.002	-0.005	-0.009**
	(2.170)	(2.516)	(1.049)	(-1.393)	(-2.334)
ln(Sales)	0.020***	0.003	-0.005***	-0.024***	0.007***
	(6.924)	(1.544)	(-3.606)	(-9.836)	(2.639)
Constant	-0.133***	0.058*	0.152***	0.533***	0.361***
	(-3.212)	(1.829)	(8.196)	(14.907)	(9.049)
N	14,128	14,128	14,128	14,128	14,128
Adj R-sq	0.821	0.656	0.452	0.744	0.634
Within Adj R-sq	0.032	0.005	0.006	0.055	0.004
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes

Notes: The main dependent variable, *Unqualified ratio*, is the ratio of unqualified audited financial statements to the total number of financial statements collected by banks. Other dependent variables *Reviewed ratio*, *Compiled ratio*, *TaxRtrn ratio*, and *Other ratio* reflect the ratios of reviewed statements, compiled statements, tax returns, and other statements (mostly company-prepared statements and qualified audit reports), respectively, to the total number of financial statements collected. These five dependent variables represent progressively lower levels of stringency in financial statement verification by banks. *Post* is a dummy variable equal to 1 for years from 2017 onward. *Oil & Gas* is a dummy variable equal to 1 for firms operating in the oil and gas industries (NAICS codes 2111, 4471, 4571, and 4572). *HighEnf(Pre)* is an indicator variable equal to 1 if the pre-shock (2011–2016) average of penalties per case exceeds the relevant mean across regions. *HighEnf(Pre-Post)* is an indicator variable equal to 1 if the region's (Pre − Post) change in penalties per case exceeds the relevant mean across regions. Standard errors clustered at the NAICS 4-digit industry level are used to calculate the *t*-statistics reported in parentheses. ***, **, and * indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix A.

Table 7: Difference-in-Differences Estimates of Bank Verification Stringency for Coal Firms from 2017 Onward

	(1) *Unqualified ratio*	(2) *Reviewed ratio*	(3) *Compiled ratio*	(4) *TaxRtrn ratio*	(5) *Other ratio*
Post × *Coal*	0.149***	0.000	-0.041***	0.006	-0.112***
	(14.910)	(0.038)	(-6.650)	(0.565)	(-8.603)
NonAccrual ratio	0.083***	-0.061**	-0.002	-0.059*	0.035
	(3.061)	(-2.041)	(-0.090)	(-1.695)	(0.973)
ROA	0.076	0.015	0.033	0.098*	-0.221***
	(1.596)	(0.471)	(1.212)	(1.950)	(-4.250)
Leverage	-0.030	-0.115***	-0.033**	0.093***	0.069*
	(-0.953)	(-5.229)	(-2.588)	(2.598)	(1.864)
Current ratio	0.014***	0.001	-0.001	-0.004	-0.010
	(2.660)	(0.354)	(-0.488)	(-0.651)	(-1.403)
Constant	0.180***	0.152***	0.080***	0.114***	0.476***
	(14.372)	(14.021)	(12.895)	(6.615)	(29.018)
N	5,487	5,487	5,487	5,487	5,487
Adj R-sq	0.897	0.648	0.679	0.810	0.687
Within Adj R-sq	0.013	0.024	0.004	0.021	0.014
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Size FE	Yes	Yes	Yes	Yes	Yes

Notes: The main dependent variable, *Unqualified ratio*, is the ratio of unqualified audited financial statements to the total number of financial statements collected by banks. Other dependent variables *Reviewed ratio*, *Compiled ratio*, *TaxRtrn ratio*, and *Other ratio* reflect the ratios of reviewed statements, compiled statements, tax returns, and other statements (mostly company-prepared statements and qualified audit reports), respectively, to the total number of financial statements collected. These five dependent variables represent progressively lower levels of stringency in financial statement verification by banks. *Post* is a dummy variable equal to 1 for years from 2017 onward. *Coal* is a dummy variable equal to 1 for firms operating in the coal industries (NAICS code 2121). Standard errors clustered at the NAICS 4-digit industry level are used to calculate the *t*-statistics reported in parentheses. ***, **, and * indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix A.

Table 8: Difference-in-Differences Estimates of Loan Counts for Oil & Gas and Coal Firms from 2017 Onward

	(1) *ln(LoanNum)*	(2) *ln(LoanNum)*
Post × *Oil & Gas*	-0.461*** (-3.786)	
Post × *Coal*		-0.599*** (-13.360)
NonAccrual ratio	-0.909*** (-3.385)	-0.906*** (-3.361)
Constant	6.250*** (201.346)	6.249*** (200.412)
N	11,900	11,900
Adj R-sq	0.773	0.773
Within Adj R-sq	0.012	0.012
Year FE	Yes	Yes
Industry FE	Yes	Yes
Size FE	Yes	Yes

Notes: The dependent variable *ln(LoanNum)* is the natural log of the number of loans. *Post* is a dummy variable equal to one for years from 2017 onward. *Oil & Gas* is a dummy variable equal to one for firms operating in the oil and gas industries (NAICS codes 2111, 4471, 4571, and 4572). *Coal* is a dummy variable equal to 1 for firms operating in the coal industries (NAICS code 2121). Standard errors clustered at the NAICS 4-digit industry level are used to calculate the *t*-statistics reported in parentheses. ***, **, and * indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix A.

Table 9: Difference-in-Differences Estimates of Loan Spreads for Oil & Gas and Coal Firms from 2017 Onward

	(1) *Spread*	(2) *Spread*	(3) *Spread*	(4) *Spread*
Post × Oil & Gas	0.484***		0.324***	
	(4.720)		(2.600)	
Post × Coal		0.826***		0.375***
		(2.808)		(12.784)
ln(TrancheAmount)	-0.352***	-0.351***	-0.048***	-0.044**
	(-27.122)	(-27.071)	(-2.658)	(-2.324)
ln(Maturity)	0.435***	0.435***	-0.092***	-0.093***
	(9.412)	(9.391)	(-6.094)	(-6.016)
Collateral	1.169***	1.166***	0.068**	0.068**
	(28.037)	(27.801)	(2.204)	(2.216)
Constant	2.866***	2.878***	4.006***	3.999***
	(17.701)	(17.677)	(40.181)	(39.582)
N	74,272	74,272	49,035	49,035
Adj R-sq	0.385	0.385	0.956	0.956
Within Adj R-sq	0.198	0.197	0.011	0.009
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Loan FE	No	No	Yes	Yes

Notes: The dependent variable, *Spread* is loan spread over LIBOR expressed in percentage points. *Post* is a dummy variable equal to one for years from 2017 onward. *Oil & Gas* is a dummy variable equal to one for firms operating in the oil and gas industries (SIC codes 1311, 1321, 1381, 1382, 1389, 2911, 2951, 2952, 2992, 2999, 5541, 5983, 5984, and 5989). *Coal* is a dummy variable equal to 1 for firms operating in the coal industries (SIC codes 1221, 1222, 1231, and 1241). Standard errors clustered at the 4-digit SIC code level are used to calculate the *t*-statistics reported in parentheses. ***, **, and * indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix A.