Shedding Light on Bias: Consumer Complaint Disclosure and Racial Equity in Financial Services *

Xiang Li[†] Ningzhe Zhou[‡]

Fordham University City University of Hong Kong

August 26, 2025

Abstract

This study investigates how the disclosure of consumer complaint narratives in 2015 by the Consumer Financial Protection Bureau affects racial disparities in financial services. Using triple-difference estimation, we show that minority consumers receive better treatment from financial institutions under CFPB supervision after the disclosure. These improvements manifest as higher deposit rates and lower fees in savings markets, and reduced rates for auto loans and credit cards in lending markets. Financial institutions receiving discriminatory complaints face intensified local competition and deposit outflows. Our evidence underscores the broad impact of service quality disclosure in narrowing racial disparities across savings and lending markets.

Keywords: Disclosure; Racial disparities; Financial services

JEL: G28; J15; D14

*For helpful comments and suggestions, we thank Thomas Chemmanur, Phil Strahan, Andreas Fuster (discussant), Harjot Mehmi (discussant), Yaser Faizi (discussant), Nonna Sorokina (discussant), Filipe Correia (discussant), Trang Nguyen (discussant), Navid Neshat (discussant), Marina Gertsberg (discussant) and various seminar and conference participants at the ASSA-IBEFA Meeting, CEPR European Conference on Household Finance, GSU CEAR Conference, Miami University Finance and Real Estate Conference, NFA Meeting, FMA New Ideas Session, LaBS Banking Workshop, Accounting Ethics Symposium, Inter-Finance PhD Seminar, and the Third Durham Conference for Finance JMP. We would also like to sincerely thank Biman Yang, Yifei He, and Yuqin Lei for their excellent research assistance.

[†]Fordham University, Gabelli School of Business. Email: xianglifinance@gmail.com

[‡]City University of Hong Kong, College of Business. Email: ningzhezhou@gmail.com

Shedding Light on Bias: Consumer Complaint Disclosure and Racial Equity in Financial Services

Abstract

This study investigates how the disclosure of consumer complaint narratives in 2015 by the Consumer Financial Protection Bureau affects racial disparities in financial services. Using triple-difference estimation, we show that minority consumers receive better treatment from financial institutions under CFPB supervision after the disclosure. These improvements manifest as higher deposit rates and lower fees in savings markets, and reduced rates for auto loans and credit cards in lending markets. Financial institutions receiving discriminatory complaints face intensified local competition and deposit outflows. Our evidence underscores the broad impact of service quality disclosure in narrowing racial disparities across savings and lending markets.

Keywords: Disclosure; Racial disparities; Financial services

JEL: G28; J15; D14

1 Introduction

Disclosure is a widely adopted regulatory tool across various industries. Unlike traditional enforcement that relies on mandates and penalties, disclosure aims to influence stakeholders by improving transparency and providing information for informed decision-making. Studies have documented its effectiveness in various settings, from improving restaurant hygiene (Jin and Leslie (2003)) to enhancing environmental governance through air pollution information disclosure (Tomar (2023); Barwick et al. (2024)).

In financial services, disclosure assumes even greater importance given the sector's vital role in shaping economic activities and daily financial decisions. While extensive research has examined the disclosure of financial institutions' risk exposures, capital adequacy, and financial reporting (Goldstein and Sapra (2014); Acharya and Ryan (2016)), little attention has been paid to the disclosure of service quality, particularly regarding potential discrimination in day-to-day financial services. This lack of transparency makes it difficult to monitor and address persistent racial disparities in financial services.

This study investigates how disclosing financial service quality affects racial disparities across financial markets. Racial bias remains a persistent issue in financial services (Cohen-Cole (2011); Faber and Friedline (2020); Butler et al. (2023)) despite governmental efforts to promote fairness (Begley and Purnanandam (2021)). As a result of this pervasive bias, minority consumers currently receive lower-quality services compared to white consumers. Compounding this problem, limited financial literacy makes minority consumers even more vulnerable to exploitation in their interactions with financial institutions (Guiso et al. (2022); Scott et al. (2024)), ultimately leading to their exclusion from mainstream financial systems. While finding effective solutions is challenging, our study provides the first evidence that disclosure policies serve as a promising tool to address racial disparities in financial services, particularly in savings and lending markets.

Our analysis demonstrates that the disclosure policy significantly reduces racial dispar-

ities across different financial services. The consistent findings in both savings and lending markets indicate disclosure's broad effectiveness as a regulatory tool in addressing unequal treatment. In the savings market, we find that branches of financial institutions with publicly disclosed complaint narratives adjust their practices in minority communities by offering more favorable deposit rates and lower account maintenance fees after the disclosure policy. In the lending market, these branches reduce their loan rates for both auto loans and credit cards compared to those not under the oversight of the Consumer Financial Protection Bureau (CFPB). Furthermore, we identify three channels through which the policy exerts its impact. First, in regions with high complaint rates, local market competition intensifies as financial institutions not subject to CFPB oversight enter these markets after gaining information from disclosures. Second, financial institutions frequently cited for discriminatory practices in complaint narratives face the threat of deposit outflows. Third, institutions that receive discriminatory complaints respond by improving service quality to reduce the occurrence of future complaints. Finally, these improvements translate into meaningful real effects for minority households. The effects include increased bank account ownership, higher auto ownership rates among low-income households, and greater confidence in credit card approval, all suggesting improved access to mainstream financial services.

We utilize the natural experiment provided by the CFPB's complaint narrative disclosure policy. As the primary regulatory agency for consumer financial markets in the United States, the CFPB plays a crucial role in protecting consumer interests (Hayes et al. (2021)). On June 25, 2015, the CFPB began publicly disclosing detailed narratives of consumer complaints with consumer permission (CFPB (2015)). The CFPB complaint system democratizes market oversight by removing barriers for stakeholders. Unlike traditional regulatory processes confined to legal proceedings, this public platform enables consumers to voice concerns, competitors to benchmark service quality, media to uncover systemic issues, and investors to evaluate operational risks—all through the same accessible database. This shift from closed regulatory circuits to open information flows creates a multi-layered moni-

toring system. The transparency of specific service failures documented in these narratives generates reputational pressures from every market direction, producing both immediate disciplinary effects and long-term deterrence.[1] Our findings show that the disclosure of complaint narratives prompts financial institutions to improve both their complaint resolution outcomes and service quality. We empirically demonstrate that after the narratives become public, financial institutions are more responsive to complaints with narratives, as reflected in fewer consumer disputes, shorter resolution times, and a higher likelihood of monetary relief.

Beyond examining these ex-post adjustments, we further investigate whether financial institutions proactively enhance service quality and reduce racial disparities. We first assess the policy's overall market effects to provide a foundation for analyzing its role in shaping racial disparities. Using a difference-in-differences (DID) framework, we find that, following the 2015 disclosure, CFPB-supervised institutions implemented significantly more consumer-friendly pricing—raising deposit rates by 0.45% and lowering loan rates by 0.33% relative to non-supervised institutions. These results indicate that the policy successfully incentivized more favorable treatment of consumers in general, raising the question of whether such improvements extended to historically disadvantaged groups, particularly along racial lines.

To identify changes in racial gaps, we employ a triple-difference (DDD) design that leverages variation in CFPB supervision and county-level racial composition. We classify counties as majority-minority or majority-white based on their demographic makeup.[2] Using the CFPB's list of supervised institutions, we identify those under supervision and match their branches in the RateWatch dataset, assigning them to the treatment group subject to the complaint disclosure requirements, with branches of non-supervised institutions serving as controls. Our triple-difference approach compares changes in racial disparities in service quality between minority and white communities across treated and control institutions

[1] Based on our discussions with CFPB officials, financial institutions actively monitor and analyze consumer complaints to assess and improve the quality of their products and services.

[2] We define minorities to include all non-white racial groups. A county is classified as majority-minority if minorities constitute more than 50% of its total population.

following the disclosure policy implementation.

Our identification strategy offers a key advantage for identification: it focuses on changes in racial disparities rather than requiring direct comparability between treated and control branches. CFPB-supervised depository institutions are typically larger (with assets above the $10 billion regulatory threshold). We impose asset-size restrictions to enhance comparability, but some unobservable differences may still remain. By introducing county racial composition (majority-minority vs majority-white) as the third dimension in our triple-difference framework, we can examine how the disclosure policy affected racial gaps. This approach relies on the assumption that, absent the disclosure policy, racial gaps would have followed parallel trends across treated and control branches. Our empirical tests support this assumption for racial gaps, which helps address concerns about imperfect comparability between treatment and control groups.

Our study provides a comprehensive evaluation of disclosure's impact by examining both savings and lending markets, as CFPB oversight extends across these markets. This multi-market analysis enables us to assess the broad effectiveness of disclosure in reducing discrimination across different financial services.

We begin with the savings market, which represents a crucial entry point for consumers into the financial system and plays a vital role in wealth accumulation. Despite its importance, this market has historically received less regulatory attention regarding discrimination than the lending market, making it particularly important to understand financial inclusion and disparities in wealth accumulation.[3] In the savings market, the risk-free nature of deposit-taking reduces concerns about statistical discrimination, a practice in which institutions may use race as a proxy for unobserved risk. This context, therefore, provides a relatively clean setting to identify taste-based discrimination—driven by racial prejudice

[3]While major consumer protection laws such as the Equal Credit Opportunity Act, Fair Housing Act, and Community Reinvestment Act aim to ensure equal access to financial services, they primarily focus on lending activities. Regulation in the savings market mainly addresses deposit insurance and bank stability through the Federal Deposit Insurance Act and Truth in Savings Act. The CFPB's complaint-based approach provides a new regulatory channel to address racial disparities in the savings market.

rather than risk-based considerations. Our analysis focuses on two key dimensions of the savings market from 2013 to 2022: deposit rates and account maintenance fees. These measures capture both the return on savings that directly affects individuals' wealth accumulation and the barriers to financial access, providing a holistic view of service quality in the savings market.

Our analysis reveals significant improvements in financial service terms for minority communities following the disclosure policy. For 12-month CDs with a $10,000 minimum balance, treated financial institutions reduce the racial gaps in deposit rates by 6.3 basis points relative to control institutions.[4] This pattern extends to other mainstream deposit products, generating at least $45.8 million in annual financial gains for minority consumers. We also find that treated institutions reduce racial gaps in account maintenance fees for savings accounts by 30.5%, equivalent to a decrease of $62 in minimum balance requirements. For interest-bearing checking accounts, the reduction reaches 34.3%, translating to a $832 decrease in minimum balance requirements in minority communities. These reductions substantially lower the entry barriers to basic banking services for minority households.

We next investigate how disclosure affects the lending market, where financial services are both high in volume and essential to consumers' daily lives. While prior research extensively examines mortgage lending due to regulatory oversight and data availability (Li (2023)), we focus on two understudied but important loan types: auto loans and credit cards. Unlike mortgage lending, auto loans lack structured oversight and transparency (Butler et al. (2023)), making quality disclosure critically important for consumers. Credit cards, as the most widely used credit product, significantly influence consumers' credit access. By examining these less-regulated market segments, we assess disclosure's effectiveness in mitigating racial biases where traditional oversight is limited. We find that financial institutions subject to the disclosure policy decrease the racial gaps in their loan rates by 10.3 basis points for

[4]Adjustments to deposit rates made by branches beyond macroeconomic policies reflect their discretionary preferences in providing deposit services. Few studies examine how disclosure policies affect such branch-level decisions and their implications for minority communities.

auto loans and by 37.2 basis points for credit card rates compared to those in control groups.

Our analysis of both savings and lending markets captures the full spectrum of financial inclusion and economic mobility for minority households. The joint examination is particularly important because these markets are interconnected in determining household financial outcomes: savings market efficiency affects wealth accumulation capacity, while lending market access influences households' ability to make important investments and smooth consumption. We document that the disclosure policy generates opposing movements in interest rates across these two markets: deposit rates increase while loan rates decrease for minority communities. These contrasting patterns strengthen our identification strategy by ruling out alternative explanations. For example, monetary policy changes cannot explain our findings, which would typically move interest rates in both markets in the same direction.

Having established the broad impact of disclosure policies, we now explore the underlying mechanisms that drive improvements in financial services. Our descriptive analysis indicates that Google search interest among financial market participants significantly increases after the disclosure. This growth in attention reflects the collective awareness that drives the effectiveness of complaint disclosures. We further investigate how allegations of misconduct, newly disclosed within complaint narratives and previously inaccessible to market participants, systematically influence stakeholder responses. Focusing on racial disparities, we utilize GPT-4o, a state-of-the-art large language model (LLM) with advanced natural language processing capabilities, to analyze consumer complaint narratives and assess potential discrimination-related issues. The awareness of narratives influences the actions of competitors, customers, and institutions facing complaints about discriminatory practices, thereby imposing both disciplinary and deterrent effects on the pricing decisions of CFPB-supervised financial institutions. Our empirical analysis reveals three key findings. First, counties with a higher prevalence of discrimination complaints see a marked increase in the number of financial institutions and branches, intensifying market competition, primarily driven by non-CFPB-supervised institutions. Second, institutions with a higher number

of discrimination complaints experience significant deposit outflows from minority communities following disclosure. Third, institutions that receive complaints strategically reduce future complaint volumes, particularly for discriminatory complaints, suggesting that financial institutions enhance service quality. Additionally, our heterogeneity analysis reveals how the volume of discrimination complaints and public attention influence the effectiveness of disclosure in reducing racial disparities in pricing.

These changes in financial service terms translate into tangible economic outcomes for minority households. Using detailed household-level data, we precisely identify racial characteristics and quantify the impact on financial inclusion. Our analysis yields three key findings that demonstrate the real effects of the disclosure policy. First, we observe a significant increase in bank account ownership among low-income minority households in areas with higher concentrations of discriminatory complaints after the disclosure. Second, these households show notably higher auto ownership rates following the policy implementation, indicating improved access to auto financing. Third, minority households in states with more documented discriminatory complaints report substantially greater confidence in credit card approval after the policy takes effect. These results collectively demonstrate that enhanced transparency through disclosure leads to measurable improvements in minority households' participation in the mainstream financial system.

This study makes several important contributions to the literature. First, we advance our understanding of the broad effects of disclosure policies. While prior research primarily examines disclosure related to corporate governance issues (Goldstein and Sapra (2014); Acharya and Ryan (2016); Leuz and Wysocki (2016); Chen et al. (2018); Bertomeu et al. (2021)), we provide the first systematic evidence on how consumer narrative disclosures shape financial service provision. Our analysis bridges previously separate literature streams of information disclosure in finance and accounting and consumer reviews in marketing (Fennis and Stroebe (2014); Zhang and Li (2021); Varga and Albuquerque (2024)) by demonstrating how public sharing of consumer experiences can drive institutional change. Furthermore, our

comprehensive examination of both savings and lending markets reveals that narrative disclosures have extensive effects across different financial services, enriching our understanding of disclosure as a regulatory tool.

Second, we link service quality disclosure to broader efforts to combat racial bias and promote equal access to financial services for historically marginalized groups. While extensive research documents unexplained racial discrimination in financial services (Cohen-Cole (2011); Faber and Friedline (2020); Bartlett et al. (2022); Butler et al. (2023)), traditional regulations often face implementation challenges and may create quantity-quality trade-offs (Begley and Purnanandam (2021)). Our study demonstrates that disclosure-based regulation can effectively complement traditional approaches in promoting equal access to financial services. Unlike conventional enforcement mechanisms that depend on regulatory monitoring and legal proceedings, the disclosure of consumer narratives creates continuous market-based pressure through public scrutiny and reputational concerns. We show that this market discipline mechanism leads to meaningful improvements in both deposit and lending terms for minority communities.

Third, we contribute to the growing literature on CFPB's regulatory effectiveness. Prior studies present mixed evidence on CFPB oversight: while some find it reduces predatory practices and stabilizes the financial system (DeFusco et al. (2020); Fuster et al. (2021); Mazur (2022)), others argue it increases compliance costs and limits credit availability (Neugebauer and Williams (2015); DeFusco et al. (2020); Fuster et al. (2021)). We extend this literature by showing how the CFPB's disclosure-based approach can reduce market unfairness through market discipline rather than its direct oversight role. Moreover, while existing research has extensively examined the CFPB's impact on mortgage lending (Li (2023); Dou et al. (2024); Dou and Roh (2024)), we show that complaint narratives affect a wide-ranging set of financial services where traditional oversight is more limited. Our analysis of both savings products and non-mortgage credit markets reveals that disclosure-based regulation can effectively address discrimination in financial services that have historically

received less regulatory scrutiny. While researchers have utilized the CFPB's complaints database to study the financial service quality of mortgage products (Begley and Purnanandam (2021)), most CFPB complaints concern non-mortgage products (see Figure A1). At a broader level, our analysis provides the first systematic evidence of how consumer narratives shape financial institutions' behavior across different product markets.

The remainder of the paper proceeds as follows. Section 2 provides institutional background on the CFPB's complaint narrative disclosure policy and describes our data sources. Section 3 presents our main empirical analysis examining how disclosure affects racial disparities in both savings and lending markets. Section 4 investigates the economic mechanisms through which narrative disclosures influence financial institution behavior. Section 5 analyzes household-level outcomes to quantify the real effects of the disclosure policy on minority households. Section 6 introduces the additional analyses we conduct. Section 7 concludes.

2 Background and Data

2.1 Background of CFPB Complaint Narrative Disclosure

The Consumer Financial Protection Bureau, established under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, serves as the chief regulatory agency protecting consumer interests in financial markets. Beginning with accepting credit card complaints in July 2011, the CFPB subsequently expanded its scope to include bank accounts, consumer loans, mortgages, and other financial services. As a regulatory agency, it addresses a wide range of consumer issues, from major service failures to serious institutional misconduct. The CFPB maintains detailed product categories within these issues, which facilitates targeted complaint submission by consumers while providing researchers the opportunity to analyze different products by linking complaint data with product market data.

On March 19, 2015, the CFPB finalized a policy permitting public disclosure of con-

sumer complaint narratives about financial products and services.[5] Subsequently, a buffer period of over 90 days was provided to help companies prepare for the new system. On June 25, 2015, complaint narratives became publicly accessible through the consumer complaint database.[6] The CFPB Consumer Complaint Database includes detailed information for each complaint: the type of financial product involved, consumer zip code, submission date, the name of the financial institution involved, and the institution's response. Since then, the initiative has attracted substantial attention from mainstream media outlets and diverse stakeholders.[7] Using product type information sourced from the public database, we systematically analyze complaint trends across key financial service subsectors. Figure A1 presents complaint volumes from 2013 to 2022 for major financial markets, revealing persistent growth in consumer grievances regarding savings accounts, auto loans, and credit card markets. This pattern suggests both emerging market-specific consumer protection issues and growing public reliance on the CFPB's complaint mechanisms.

Figure 1 illustrates shifts in public attention toward the CFPB's narrative disclosure policy using trends in Google search interest from 2011 to 2022. The search volume for "CFPB complaint" is negligible in 2011, the year CFPB was established, and only gains moderate attention starting in 2013 after the CFPB launches its publicly accessible complaint database. In June 2015, the CFPB began disclosing detailed complaint narratives to the public, triggering a significant surge in Google search interest (with relative search volume doubling). The increased attention resulting from these narrative disclosures persists in subsequent periods, showing continued but fluctuating growth. However, a potential concern regarding the effects of complaint narrative disclosure is that various enforcement

[5]The CFPB first launched the complaint database on March 28, 2013, but this initial disclosure only included basic information, such as company names and ZIP codes, without providing access to the narrative content of the complaints.

[6]Most complaints are submitted via the portal. On the website, the complaint submission follows a structured five-step process. Specifically, consumers answer the following questions: "What is this complaint about?", "What type of problem are you having?", "What happened?", "What company is this complaint about?" and "Who are the people involved?". After receiving a complaint, the CFPB transmits it to the relevant financial institution and works to obtain a response for the consumer within 15 days.

[7]For example, see Details of "Consumers' Financial Complaints to Go Public," March 19, 2015, The Wall Street Journal. And "Consumer Finance Complaints Hit the Internet," June 26, 2015, MarketWatch.

actions by the CFPB may interfere with the disclosure's impact. The persistently low public attention toward "CFPB enforcement" shown in this figure provides evidence that rules out confounding effects from concurrent regulatory actions. In addition, we also search for discrimination-related enforcement actions conducted by the CFPB. The number of these actions remains limited during the period from 2013 to 2022, and they do not show any clear concentration over time.[8]

Building on this growing engagement with the complaint system, we examine whether financial institutions take complaints seriously, particularly those with publicly disclosed narratives, by analyzing complaint resolution outcomes between March 19 and December 31, 2015. On March 19, 2015, the CFPB began offering consumers the option to make their complaint narratives public when filing complaints, with the actual disclosure of these narratives starting on June 25, 2015. Table A4 and Figure A4 show significant improvements in financial institutions' complaint resolution practices following narrative disclosure. The disclosure policy leads to a 3.9% reduction (equivalent to 10.2% of one standard deviation) in consumer disputes, a 0.5% increase (equivalent to 5.1% of one standard deviation) in the likelihood of timely responses from institutions, and a 2.1% increase (equivalent to 8.7% of one standard deviation) in the likelihood of monetary relief for complaints with narratives. Haendler and Heimer (2025) find that consumers with higher income and education are more likely to receive favorable firm responses, thus benefiting disproportionately from the complaint system. In contrast, we focus on a structural determinant of complaint resolution: when complaint narratives are publicly disclosed, firms provide better outcomes. This mechanism may help mitigate disparities driven by individual differences, allowing disadvantaged consumers to achieve more equitable results through public disclosure.

Furthermore, our main analysis examines changes in racial disparities in the savings and lending markets following the CFPB's public disclosure of complaint narratives in June

[8]We search the CFPB official website (see link) using the keyword "discrimi" and find only 14 records between 2013 and 2022, with 7 of them focusing on mortgage issues.

2015.[9] From the implementation of the policy in 2015 to 2022, consumers submitted 871,960 complaints with narratives in the savings, auto loan, and credit card markets, representing 40.7% of all complaints. We use a tailored prompt to train GPT-4o to detect whether complaint narratives submitted in 2015 include discrimination-related content (see Appendix D for details). Table A1 presents three example complaints, showing key information fields including "Date received," "Product," "Consumer complaint narrative," "Company," and "Company response." While personal information is protected, the racial bias content is evident. For instance, one narrative describes "...It was about me, a hardworking African-American businesswoman coming into the bank with a huge check to deposit for my business that I and my business was awarded and earned and immediately being racially discriminated against...".

The CFPB's disclosure policy creates a sharp regulatory divide: supervised institutions face non-negotiable disclosure of detailed complaint records, while unsupervised peers face no such requirement. This policy-induced discontinuity creates a quasi-experimental setting, enabling the estimation of policy effects through counterfactual comparisons between institutions subject to mandatory disclosure and those exempted. Under official regulations, the CFPB maintains supervisory authority over depository financial institutions with assets exceeding $10 billion, including banks, thrifts, credit unions, and their affiliates. We match these supervised institutions to our primary datasets using the Research Statistics Supervision Discount Identifier (RSSD) from the CFPB's supervised institution list.[10] The CFPB's supervision also extends to non-depository institutions of all sizes, including mortgage originators and servicers, payday lenders, and private student lenders, as well as major participants in other consumer financial markets as defined by CFPB rules. These institutions are also considered under the influence of disclosure regulations when they appear in

[9] Our results remain robust when using March 19, 2015, when the CFPB finalized the policy allowing consumers to share their complaints publicly.

[10] The institution list is available at (see `link`). For our analysis, we categorize institutions based on the list from the March 31, 2015 edition, which is the closest date to when the CFPB finalizes the disclosure policy.

our datasets.[11]

2.2 Data Sources

2.2.1 RateWatch

Our empirical analysis uses RateWatch's branch-level data on interest rates and fees for various financial products from 2013 to 2022,[12] focusing on deposit rates, loan rates, and fees at the branch-week level.[13] We aggregate these weekly observations to the quarterly level.[14] To investigate institutional responses to disclosure policies, we follow Drechsler et al. (2017) and examine pricing behavior in the savings and lending markets by focusing on branches that actively set their rates. Specifically, we select the following products for our analysis:

Within the savings market, we examine interest rates of widely-used deposit products, particularly focusing on 12-month certificates of deposit (CDs) with balances of $10,000 (Drechsler et al. (2017); Lin (2020); Dlugosz et al. (2024)). Our analysis also covers other mainstream CDs and money market accounts (MMs). Additionally, we analyze minimum balance requirements for waiving maintenance fees in both savings and interest-bearing checking accounts.

For the lending market, our analysis covers vehicle loan rates for both short-term and long-term borrowing, represented by 36-month and 72-month terms, respectively (Yi (2022); Wang (2025)). We also examine credit card interest rates, focusing on standard and premium

[11] These institutions represent less than 1% of our sample. We provide robustness tests in later analyses that exclude these institutions, and our results remain consistent.

[12] Our sample period starts in 2013 because the CFPB gradually expanded its complaint collection to banking accounts, auto loans, student loans, and other financial products in 2012, with categories becoming well-established by 2013 to provide a more complete dataset for our analysis.

[13] RateWatch integrates multiple sources, including competitor rate filings, audited financial statements, user feedback, and regulatory reports, through cross-validation. It provides standardized benchmarks for deposit rates, loan terms, and fee structures across a broad geographic coverage at the branch level in the U.S. The reliability of this dataset has also been recognized in academic research. For example, d'Avernas et al. (2023) find that the differences in deposit pricing among banks of varying sizes documented in RateWatch data align closely with evidence from Call Report data collected by the Federal Financial Institutions Examination Council.

[14] For each product, we use its last recorded interest rate or fee within each quarter as the quarterly observation. We also examine quarterly mean values as a robustness check.

credit card rates (Chava et al. (2023)).

2.2.2 Others

The Call Reports dataset provides quarterly, institution-level information on the income statements and balance sheets of all U.S. commercial banks. From this dataset, we extract key variables over the period 2013–2022, including total assets, interest expense, total deposits, interest income, total loans, and net income. We construct an institution's deposit rate as the ratio of total interest expense to total deposits, and its loan rate as the ratio of total interest income to total loans (Drechsler et al. (2017); Döttling (2025)).

The Summary of Deposits (SOD) dataset provides branch-level deposit amounts from FDIC-insured institutions, collected annually as of June 30 from 2013 to 2022.

The Current Population Survey (CPS) dataset offers household-level bank account ownership and various household characteristics, such as income level, highest level of education, household size, and employment category. Although the CPS dataset includes annual data from 2013 to 2022, only odd-numbered years contain information on bank account ownership.

The American Community Survey (ACS) dataset supplies household-level auto ownership and household characteristic variables, covering annual data from 2013 to 2022.

The Survey of Household Economics and Decisionmaking (SHED) dataset delivers household-level self-reported confidence in credit card approval along with household characteristic variables, encompassing annual data from 2013 to 2022.

We collect county-level demographic indicators from the Bureau of Economic Analysis and the Census Bureau, including total population, racial composition, and per capita income, spanning from 2013 to 2022. The proportion of minority groups in each county is utilized to identify minority communities.

2.3 Summary Statistics

Table 1 presents summary statistics for our key variables from 2013 to 2022. Panel A of Table 1 reports the distribution of branch-level variables. These variables encompass deposit interest rates, auto loan rates, credit card rates, and account maintenance fees from the RateWatch dataset on a year-quarter basis, along with deposit amounts from the SOD dataset on an annual basis. Panel B summarizes key institution-level data from the Call Reports, specifically quarterly deposit and loan rates. Panel C contains household-level indicators from three survey datasets, including bank account ownership, auto ownership, and credit card approval confidence. Panel D reports characteristics at the county-year level.

In compiling these statistics, we apply a cap of 100 billion total assets, including only branches from institutions with total assets below 100 billion dollars as of the second quarter of 2015. This sample restriction ensures that institutions affected by the disclosure policy and those that are not affected remain comparable without systematic differences (Li (2023)).[15] Additionally, to analyze racial differences in financial services pricing, we define minority communities as counties where the non-white population exceeds 50% of the total population in 2015. These communities represent 7% of the national population but contain 82.5% of the nation's minority residents.

[Insert Table 1 about here]

To examine whether institutions treat minority consumers unfairly, we compare interest rates across communities with different racial compositions in both the savings and lending markets. Our identification strategy leverages within-institution variation to isolate the role of community demographics from other factors. Specifically, we compare the rates offered by the same institution in minority-majority communities versus white-majority communities. This approach allows us to control for unobserved institution-level heterogeneity that could

[15]Larger banks, in comparison to smaller banks, often have distinct capital structures and benefit from economies of scale. These institutions also face enhanced regulatory oversight following the Dodd-Frank Act. Specifically, bank-holding companies with assets above $100 billion must undergo more stringent supervision and participate in regulatory stress tests under the Comprehensive Capital Analysis and Review (CCAR) framework established in 2011.

otherwise confound a direct comparison.

Figure A2 illustrates the racial disparities observed in the savings and lending markets between 2013 and the first quarter of 2015, immediately preceding the public disclosure of complaint narratives. All reported rates are weighted averages: deposit rates are weighted by deposit amounts, and borrowing rates are weighted by outstanding balances specific to each loan type (e.g., auto loans, credit cards). This approach captures the financial significance of larger balances in shaping both the returns on deposits and the costs of borrowing. In the savings market, deposit rates are notably lower in minority communities compared to white communities (0.18% vs. 0.23%). In the lending markets, borrowing rates are consistently higher in minority communities. For auto loans, the rates are 4.00% in minority communities and 3.99% in white communities. For credit cards, the rates are 9.71% and 9.27%, respectively—reflecting a nearly 45 basis points disadvantage for minority communities. Taken together, the descriptive evidence suggests that, prior to the disclosure policy, financial institutions systematically offered less favorable terms at branches located in minority communities relative to those in white communities.

Furthermore, Table A3 presents the distribution of branches of institutions and their interest rate designs in our main dataset. Column (1) focuses on CFPB-supervised institutions with total assets below 100 billion dollars, while Column (2) examines non-CFPB-supervised institutions. Panel A shows that 127 CFPB-supervised institutions operate 537 branches capable of actively setting interest rates across 310 counties. Each institution maintains 1.1 branches per county, with branches adjusting interest rates 6.86 times during our sample period. For non-CFPB-supervised institutions in Column (2), the average is 1.03 branches per county, with rate adjustments occurring around 9 times, comparable to that of CFPB-supervised institutions. Panels B and C present similar distributions for auto loan and credit card rates. Auto loan rate adjustments occur more frequently, reflecting this market's greater responsiveness to changing conditions. Overall, after excluding large financial institutions, our sample exhibits relatively balanced interest rate variations between CFPB-supervised

and non-CFPB-supervised institutions, providing sufficient rate changes to quantify the impact of the disclosure policy.

3 Main Findings on Savings and Lending Products Pricing

This section begins by evaluating the overall impact of the CFPB complaint narrative disclosure and then investigates its effect on racial disparities in both the savings and lending markets. In the savings market, we analyze branch-level deposit interest rates and account maintenance fees, while in the lending market, we focus on auto loans and credit card products.

3.1 Overall Effects on Interest Rates

The public disclosure of CFPB complaint narratives is designed to address a broad spectrum of financial misconduct. The resulting market discipline can, in turn, enhance the overall quality of financial services. Before evaluating the policy's impact on racial disparities, it is essential to first establish its general, market-wide effects. Accordingly, this section empirically examines whether the disclosure policy influences the deposit and loan rates offered by financial institutions.

We construct a panel dataset from the Call Reports, comprising institution-by-year-quarter level interest rate information spanning from 2013 to 2022. Using this dataset, we examine the impact of the CFPB's complaint narrative disclosure by estimating the following difference-in-differences model.

$$\begin{aligned} Y_{f,t} =& \alpha + \beta_1 Treat_f \times Post_t \\ &+ X\theta + \mu_{Institution} + \mu_{State \times YearQuarter} + \epsilon_{f,t} \end{aligned} \tag{1}$$

Where $Y_{f,t}$ represents the interest rate for deposits or loans at financial institution f in period t. Deposit rates are measured as interest expense per unit of deposit funding. Loan rates are measured as interest income per unit of loan issuance. The treatment indicator $Treat_f$ equals one if institution f was under CFPB supervision in the first quarter of 2015, and zero otherwise. We restrict the treatment group to institutions with total assets below $100 billion to improve comparability with the control group. To capture the timing of the policy change, $Post_t$ equals one for periods from the second quarter of 2015 onward, and zero for earlier periods when complaint narratives were not public. $\boldsymbol{X}$ is a vector of time-varying, institution-level controls. These controls include total assets, domestic deposits, total loans, return on assets (ROA), and net interest margin (NIM), and account for institutional size and financial performance. The specification includes institution fixed effects to absorb time-invariant characteristics of each institution. It also includes state-by-year-quarter fixed effects to control for regional and temporal variation, such as local economic shocks and regulatory changes. Due to this fixed effects structure, the main effects of treatment status ($Treat_f$) and policy timing ($Post_t$) are absorbed. Standard errors are clustered at the institution level.

[Insert Table 2 about here]

Table 2 presents the results. Columns (1) and (3) show that, relative to control institutions, treated institutions raise deposit rates by 0.45% and lower loan rates by 0.33% following the disclosure. These adjustments imply a potential compression in NIM of 0.78 percentage points, equivalent to 38.4% of the sample average. Columns (2) and (4) extend the analysis by splitting treated financial institutions into two groups based on whether the volume of narrative complaints they received in 2015 is above or below the median ($HighNarrComp_f$ versus $LowNarrComp_f$). The results show that the policy's effect is concentrated among institutions with high complaint exposure. These institutions raise deposit rates by 0.50% and lower loan rates by 0.65%. In contrast, institutions with fewer narrative complaints show smaller or statistically insignificant changes.

Figure A5 presents the estimated difference-in-differences effects from the event study specification. Panel (a) presents the baseline event study, based on the specification in Column (1) of Table 2. Panels (b) and (c) report results for institutions with high and low volumes of narrative complaints, respectively, using the specification in Column (2). All panels indicate that, prior to the disclosure, deposit rates exhibited stable trends with no significant differences across groups, lending support to the parallel trends assumption. Following the disclosure, deposit rates increased progressively, suggesting a positive and sustained effect of public narrative disclosure on pricing, particularly among institutions with higher volumes of narrative complaints.

These findings highlight the disclosure policy as a meaningful market shock that influences bank pricing behavior. Beyond average effects, it is important to ask whether the policy also reduces racial disparities in access to fair financial services. Minority communities have long faced systemic barriers and may be especially affected by greater transparency. To examine this possibility, we adopt a triple-difference framework. This approach tests whether institutions' responses to disclosure vary with the racial composition of the markets they serve.

3.2 Identification Strategy for the Effects on Racial Gaps

We assess the impact of complaint narratives disclosure on racial gaps in the pricing of the four products through a triple-difference estimation approach:

$$\begin{aligned} Y_{i,c,t} =& \alpha + \beta_1 Treat_i \times Post_t \times Minority_c \\ &+ X\theta + \mu_{Branch} + \mu_{YearQuarter} \\ &+ \mu_{Institution \times Year} + \mu_{Product} + \epsilon_{i,c,t} \end{aligned} \tag{2}$$

Where $Y_{i,c,t}$ represents the pricing of four prevalent financial services: deposit rates, account maintenance fees, auto loan rates, and credit card rates at branch i in county c at

time t. For our treatment indicator, $Treat_i$ equals one if branch i belongs to an institution under the oversight of the CFPB in the first quarter of 2015, and zero if the branch is not under CFPB oversight. To capture the policy change timing, $Post_t$ indicates the periods before and after the CFPB made complaint narratives public, equaling one from the second quarter of 2015 onward, and zero for earlier periods. Our county classification relies on the minority population ratio, with $Minority_c$ taking a value of one for counties where the minority ratio exceeds 50%, and zero otherwise. Finally, $\boldsymbol{X}$ consists of the remaining interaction terms from the triple-difference setting and county-level characteristics, including population and per capita income growth rates.

Our specification includes several fixed effects to address unobserved variations. Branch fixed effects capture branch-specific characteristics, such as service quality. Year-quarter fixed effects absorb temporal changes in financial markets, including government transitions and economic policy adjustments. Institution-year fixed effects control for pricing differences across institutions, allowing us to identify pricing differences that arise from the racial composition of served communities within the same institution.

In the estimation, apart from presenting the baseline results, we also report results with county-institution-year fixed effects to absorb time-varying county-level heterogeneity, such as institutions' local business strategies and the influence of emerging nonbanks and fintech firms on the local market landscape. For regressions involving multiple products, we include product fixed effects to address unobservable differences between products. We cluster standard errors at the institution, county, and year levels to handle potential correlation in error terms. The coefficient β_1 identifies how the racial gap in the pricing of the four financial services changes in the treatment group relative to the control group after the complaint narrative disclosure. This effect reflects the market discipline created by the disclosure policy, where detailed misconduct information incentivizes improved institutional behavior. Figure A3 provides an illustration of the triple-difference model for intuitive understanding.

3.3 Effects on Racial Gaps in Deposit Interest Rates

Prior regulatory and academic efforts addressing racial disparities have concentrated on the lending market. However, it is difficult to distinguish whether racial gaps in the lending market stem from discrimination or from the higher risks typically associated with minority borrowers. Individual risk levels depend on multiple factors, making it challenging to conduct empirical analyses that adequately control for all these factors. By contrast, the savings market entails minimal risk for financial institutions, removing the need to assess individual credit characteristics. This low-risk environment offers a cleaner setting to identify taste-based discrimination, in which racial disparities arise from biased preferences rather than risk-based assessments.

A descriptive analysis of the savings market reveals significant racial disparities, even in this risk-free setting. From 2013 to the first quarter of 2015, just before the public disclosure of complaint narratives, depositors in white-majority communities received an average deposit rate of 0.27%, while those in minority communities faced a rate of 0.17%.[16] This difference is statistically significant at the 1% level, confirming lower deposit rates in minority communities.

We next estimate the effect of complaint narratives disclosure on deposit rates by examining the most commonly used products, with a specific focus on 12-month CDs with an account balance of $10,000 (12MCD10K). Column (1) of Table 3 shows that the coefficient for the triple-difference term, $Treat \times Post \times Minority$, is significantly positive. Specifically, the disclosure policy increases deposit rates by 6.3 basis points in minority communities on average, equivalent to 12.1% of the sample mean. This finding indicates that treated banks narrow the racial gaps in deposit rates across communities following the disclosure policy implementation. In Column (2), we further control for unobservable confounders by including

[16] We calculate the weighted average deposit rates across different communities in the savings market during the pre-disclosure period using the product 12MCD10K. To enhance the comparability of descriptive results, the calculation is based on institutions with branches in both minority and white communities, with deposit amounts at the branch level used as weights.

county-institution-year fixed effects. The results remain robust, with the triple interaction coefficient staying positive and significant at the 1% level. The coefficient on the interaction term $Minority \times Post$ in the triple-difference specification is not reported but is statistically insignificant. This rules out pricing changes by control group institutions and instead points to adjustments by treated institutions under CFPB supervision.

Columns (3) and (4) extend our analysis by including data from eight types of mainstream CDs and MMs from the savings market, following the specifications of Columns (1) and (2) respectively.[17] To address unobservable product-level heterogeneity, we include product fixed effects in our regressions and find that the results remain positive and significant. This larger sample analysis provides strong evidence that the disclosure policy directly increases deposit rates in minority communities. The coefficient on $Treat \times Post \times Minority$ in Column (3) indicates that treated branches in minority communities raise their deposit rates by 3.9 basis points on average. We estimate that the CFPB disclosure generates economic benefits of approximately $45.8 million annually for consumers in minority communities through higher deposit interest rates.[18] Although this disclosure policy primarily aims to improve banking service quality rather than specifically address racial disparities, it effectively narrows these disparities by revealing misconduct details. Compared to other policies, it involves lower implementation costs and has fewer negative impacts. For instance, the Community Reinvestment Act (CRA) has been shown to have adverse effects on service quality in minority communities (Begley and Purnanandam (2021)).

[Insert Table 3 about here]

[17] The eight products refer to four types of CDs: 12MCD10K, 24MCD10K, 36MCD10K, and 12MCD100K, as well as four MMs: MM25K, MM50K, MM100K, and MM250K.

[18] We quantify the economic magnitude as follows. The average total deposit amount per treated branch in minority communities is $174.37 million. Based on the coefficient on $Treat \times Post \times Minority$ in Column (3) of Table 3, which indicates a 3.9 basis points increase in deposit rates for treated branches in minority communities, each branch provides an additional $0.07 million in annual interest payments to minority community depositors. The Summary of Deposits reports 928 treated branches operating in minority communities. We exclude noninterest-bearing deposits from our calculation because they are unaffected by changes in the disclosure policy. In the fourth quarter of 2015, FDIC-insured domestic noninterest-bearing deposits made up approximately 27.5% of total deposits. Based on these figures, we estimate the total increase in annual interest payments to minority communities to be at least $45.8 million.

A potential limitation of our analysis is that setting a $100 billion total asset cap for institutions might artificially restrict our sample and bias the results. To address this concern, we vary the cap threshold from $20 to $500 billion, setting a new cap at every $20 billion interval and estimating the model at each threshold. Figure A6 shows that the coefficients remain significant across all thresholds, confirming the robustness of our results. The coefficients exhibit a decreasing pattern as the cap increases, suggesting stronger effects under smaller caps. This may be because smaller caps could alleviate the systematic differences arising from large financial institutions. With a $20 billion cap (shown in the leftmost line), the disclosure policy increases deposit rates in minority communities by 7.5 basis points. Even with a $500 billion cap (shown in the rightmost line), we still observe a 4.8 basis point increase. Considering the balance of observations between treated and control branches, our baseline cap choice (marked by the red line) appears appropriate.

The validity of our triple-difference estimation relies on the assumption of parallel trends. This assumption requires that racial gaps between treated and control branches in both minority and white counties share parallel trends. When this assumption is met, we have grounds to believe that the triple-difference model can accurately estimate the true effects of the disclosure policy. We test this assumption using event study analysis based on Equation (2), which provides statistical validation and dynamic effect estimation. Figure 2 shows that in the quarters before the disclosure, no effects significantly different from zero are identified, and the estimated coefficients for the pre-trend are stable over time, showing no abnormal trends. Following the disclosure, we observe immediate and persistent changes in deposit rates for minority communities. These sustained effects are consistent with expectations, as the disclosure policy is a long-term design that has been in effect since its inception. This means that the CFPB continuously receives and discloses narratives related to complaints.

[Insert Figure 2 about here]

Additionally, we conduct several robustness tests to verify our findings. We begin by testing the robustness of our variable definitions. Specifically, we examine two alternative

forms of the dependent variable. One is the quarterly average interest rate of a branch, computed as the mean of its weekly interest rates within a quarter. The other one is the rate spread, defined as the difference between the rate in the last week of the quarter and the Federal Funds target rate.[19] Table A5 shows that our findings are robust and not sensitive to the form of the outcome variable. We also replace the binary minority community indicator with a continuous minority ratio for each county. As shown in Table A6, the results remain consistent. Furthermore, we examine the impacts of the disclosure policy by separating minority communities into Black and non-Black minority communities. Table A7 indicates that the disclosure of complaints primarily improves deposit rates for Black communities.

We extend our robustness checks by evaluating the sensitivity of our model specification. To assess inference under alternative assumptions about standard error correlation, we re-estimate the model using two-way clustering at the institution and county levels. As reported in Table A8, the results remain robust. In addition, we control for county-level income using a triple-difference framework. Table A9 shows that the coefficient on *Treat* $\times$ *Post* $\times$ *LowIncome* is statistically insignificant, while the coefficient on *Treat* $\times$ *Post* $\times$ *Minority* remains robust. This suggests that our main results are not confounded by county-level income.

Another concern is that branch ownership changes during the sample period could compromise identification. For instance, branches in the control group may be acquired by institutions in the treated group, potentially violating the triple-difference assumption. After excluding branches that experienced ownership transitions, our results remain robust, as shown in Table A10.

To further address identification concerns, we employ a difference-in-discontinuities (diff-in-disc) design (Grembi et al. (2016); Bennedsen et al. (2022)), which compares the pre- and post-disclosure discontinuities at the \$10 billion total asset threshold. By focusing on institutions near the threshold, this approach improves comparability between treated

[19]We collect data from the Federal Reserve Economic Data (FRED) on the Fed funds target rate from 2013 to 2022 to calculate the rate spreads for our products of interest.

and control groups and facilitates a more credible identification of the disclosure policy's effect.[20] Our analysis in Table A11 shows that after the disclosure policy, institutions above the threshold significantly increase deposit rates in minority communities, while remaining stable in white communities. An event study confirms both the parallel trends assumption and the persistence of treatment effects.

Finally, we examine the impact of the CFPB database launch in 2013. This policy granted the public access to basic complaint information, such as company names, but excluded detailed complaint narratives. Columns (1) and (2) of Table A12 show that the policy improves average outcomes for all consumers in deposit rates. However, it does not reduce racial disparities, as indicated by Columns (3) and (4). This finding supports our main analysis, which shows that racial gaps narrow specifically when detailed complaint narratives are disclosed. These narratives provide richer information, enabling stakeholders to identify banks' specific problems and implement targeted disciplinary actions benefiting disadvantaged communities.

3.4 Effects on Racial Gaps in Account Maintenance Fees

Despite limited research attention, account fees significantly impact consumers' financial well-being, affecting both their initial account opening decisions and long-term banking relationships. Prior qualitative studies suggest that high fees may deter consumers from participating in traditional banking (Servon (2017)). Faber and Friedline (2020) empirically show that banks impose significantly higher minimum balance requirements to avoid service fees in non-white majority areas, with this gap exceeding $180 compared to white majority areas. We investigate how the CFPB's disclosure policy improves the unfair treatment of minority consumers regarding fees, focusing on maintenance fees for checking and savings accounts, the two most prevalent account types.

[20] According to regulation rules, the CFPB supervises banks, thrifts, and credit unions with assets exceeding $10 billion and their affiliates. To ensure a sharp discontinuity at the threshold, we focus on banks, thrifts, and credit unions while excluding their affiliates.

We estimate the impact on maintenance fees using the same specification in Equation (2). However, the dependent variable is now maintenance fees, specifically the minimum balances required to avoid fees.

[Insert Table 4 about here]

Table 4 examines how CFPB disclosure affects racial gaps in minimum balance requirements for avoiding fees on savings and checking accounts. Column (1) shows that following the disclosure of complaint narratives, treated branches in minority communities reduce minimum balance requirements for savings accounts by 30.5% compared to white communities. Column (2) adds county-institution-year fixed effects to control potential unobservable factors, and the results remain robust. In Columns (3) and (4), we extend this analysis to checking accounts and find similar outcomes. Specifically, Column (3) shows a 34.3% reduction in checking account minimum balance requirements for treated branches in minority communities compared to white communities.

Based on estimates from Columns (1) and (3), this reduction translates to a $62 decrease in minimum balance requirements for a savings account and an $832 decrease for an interest-bearing checking account in minority communities.[21] These effects are economically significant given the widespread use of these accounts. Furthermore, our event study analysis in Figure 3 shows no pre-trend concerns and demonstrates persistent effects following the policy change.

[Insert Figure 3 about here]

3.5 Effects on Racial Gaps in Auto Loan Rates

Auto loans are one of the most prevalent consumer credit products in the market, yet they face considerably less regulatory oversight compared to mortgages. While mortgage lenders operate under stringent supervision and must report detailed borrower characteristics, auto lenders are subject to more limited regulatory requirements and disclosure obli-

[21] In this dataset, the average minimum balances to avoid service fees are $204.5 for savings accounts and $2,426.6 for interest-bearing checking accounts.

gations. This regulatory framework creates challenges for both monitoring potential racial disparities and conducting academic research on lending inequalities in this market. Butler et al. (2023) document evidence of racial discrimination in auto lending that crowds out approximately 80,000 minority loans annually and results in an interest rate gap of 70 basis points for minority borrowers. However, research on strategies to reduce these disparities remains limited, especially regarding the potential role of transparency mechanisms. We address this gap by analyzing how the public disclosure of consumer complaints affects racial disparities in auto loan pricing.

Table 5 analyzes the impact on auto loan rates using the setting in Equation (2), with auto loan rates as the dependent variable. The study focuses on two commonly selected auto loan products: 36-month short-term loans and 72-month long-term loans. We specifically examine these loan terms in the used car market, given its substantial market share and higher utilization by minority consumers.[22] To account for systematic differences across loan products with different maturities, we incorporate term fixed effects. The triple interaction coefficient on $Treat \times Post \times Minority$ reveals a 10.3 basis point narrowing of racial pricing gaps between minority and white communities at treated branches relative to the gaps observed at control branches. This treatment effect is equivalent to 2.5% of the baseline sample mean rate, suggesting meaningful consumer welfare improvements.

Column (2) introduces county-institution-year fixed effects to absorb any unobserved heterogeneity that varies at the county-institution level over time. This stringent set of fixed effects controls for time-varying institutional characteristics within each county, such as local business strategies, relationships with local borrowers, market-specific lending policies, and the competitive dynamics in local banking markets. This specification yields a 6.8 basis point decline through the triple interaction term, equivalent to 1.7% of the sample mean. Both statistically and economically significant, these findings confirm that disclosure policies

[22] Butler et al. (2023) report that 42% of 2017 auto loan originations involved subprime borrowers (credit scores <660), with used cars comprising roughly three-quarters of such loans. Furthermore, Cox Enterprises' 2020-2021 survey shows minority buyers chose used cars 12.5% more frequently than new cars.

enhance credit access for minority borrowers.

[Insert Table 5 about here]

The event study analysis in Figure 4 supports our triple-difference estimation. Using the specification in Column (1) of Table 5, Figure 4 shows that prior to disclosure, racial gaps between treated and control branches are not significantly different. Policy effects remain statistically significant throughout the post-disclosure horizon, with most post-disclosure coefficients being negative. In the terminal period, minority borrowers at treated branches experience a 25 basis point rate reduction and this effect is significant at the 5% level.

[Insert Figure 4 about here]

3.6 Effects on Racial Gaps in Credit Card Rates

Credit cards represent a fundamental financial product that provides households with crucial access to short-term liquidity and financial flexibility. Beyond facilitating everyday transactions, credit cards serve as an essential buffer against unexpected expenses and financial shocks. Despite its importance, the credit card market exhibits persistent racial disparities in minority consumers' access to credit cards and the interest rates they receive. This evidence underscores the need to improve the treatment of disadvantaged groups (Cohen-Cole (2011); Dwyer (2018)). In this section, we provide a potential solution by analyzing how complaint narrative disclosure policies influence institutional credit card interest rate pricing in minority communities.

To thoroughly examine the impact of the disclosure policy, we estimate interest rates for both standard and premium credit cards, using product fixed effects to control differences in product characteristics. Table 6 presents the results. The estimated coefficient on $Treat \times Post \times Minority$ in Column (1) indicates that, compared to control branches, treated branches offer lower loan rates for consumers in minority communities, narrowing the racial gaps in pricing relative to those in white communities by 37.2 basis points, which corresponds to 3.2% of the sample mean. When we include county-institution-year fixed

effects in Column (2), the results remain negative and statistically significant at the 1% level.

[Insert Table 6 about here]

Our event study analysis in Figure 5, based on the setting in Column (1) of Table 6, provides additional support for these findings. The figure illustrates that following the disclosure policy implementation, treated branches in minority communities gradually reduce loan rates. The long-term impact, as indicated by the final-period coefficient, is more pronounced than the short-term effects. This reflects increased consumer awareness of credit card misconduct, as evidenced by the surge in complaints related to credit card issues in Figure A1.

[Insert Figure 5 about here]

4 Channel Discussion

The disclosure policy makes financial institutions wary of potential exposure, leading them to reduce unfair treatment of disadvantaged customers, particularly minorities. At the same time, the narratives inform other market participants by revealing previously hidden misconduct and triggering responsive actions. Our analysis shows that minority consumers benefit more than white consumers in both savings and lending markets following the release of these complaint narratives. In this section, we explore the underlying mechanisms through which the increased information from complaint narratives influences market outcomes.

The analysis begins with how competing institutions respond to information revealed in complaint narratives. These disclosures are captured by rival institutions and prompt adjustments in their market entry strategies. The next part examines changes in customer behavior, particularly deposit outflows, following the release of such information. We then examine the financial institutions receiving complaints (especially discrimination-related complaints) and estimate the changes in the trend of their complaint volumes. Additionally, this section

discusses the heterogeneous effects of the policy to better understand when and how the disclosure of complaint narratives is most effective.

4.1 Reputational Pressures and Market Discipline

4.1.1 Competitor Entry

A prerequisite for the CFPBs 2015 public complaint disclosure to influence market dynamics is that external stakeholders recognize and act upon the newly released narrative data. To assess the extent of dissemination, we analyze media engagement using the *Factiva* database, focusing on news articles containing the keyword "CFPB complaint narrative" between 2011 and 2022. Out of 930 total articles, 148 were published in 2015 alone—the peak year of coverage—highlighting immediate media interest following the policy change. Importantly, such engagement has persisted: during Wells Fargos 2022 phony accounts scandal, media reports underscored how complaint narratives had served as an early warning signal long before formal investigations.[23]

Beyond informing the public, the CFPB's disclosure policy—amplified by sustained media attention—can reshape competitive dynamics by lowering information barriers for potential entrants. Publicly available complaint narratives expose specific areas of consumer dissatisfaction with incumbent firms, making it easier for competitors to identify underserved needs, target vulnerable segments, and tailor their entry strategies accordingly. In this sense, complaint disclosures serve not only as a reputational risk to existing firms but also as a market signal that attracts new entrants, thereby fostering a more dynamic and contestable environment in the financial services sector.

In this subsection, we examine a key market participant: competitors of the affected financial institutions, who base their actions on information derived from complaint narratives. These competitors leverage publicly available complaints to identify areas where existing financial institutions provide poor services. As a result, new entrants enhance service quality

[23]For more details, see: link

by adjusting their strategies to prevent similar failures and attract dissatisfied customers from incumbent institutions. In our analysis, we construct county-year level measures—including the number of branches, the number of institutions, and the Herfindahl-Hirschman Index (HHI)—using data from the SOD database. The model specification is as follows:

$$\begin{aligned} Y_{c,t} =& \alpha + \beta_1 HighDiscCompl_c \times Post_t \times Minority_c \\ &+ X\theta + \mu_{County} + \mu_{Year} + \epsilon_{c,t} \end{aligned} \tag{3}$$

Where $Y_{c,t}$ represents the local market structure in county c and year t, measured by the number of branches, the number of institutions, and market concentration, as captured by the HHI. The key independent variable of interest, $HighDiscCompl \times Post \times Minority$, captures the effect of disclosure on the local market structure in minority counties with a high ratio of discriminatory complaints. *HighDiscCompl* equals one for counties with above the median numbers of discriminatory complaints as a proportion of the county's population in 2015, and zero otherwise. $Post_t$ is a post-policy implementation indicator that equals one for years 2015 and beyond, and zero otherwise. Our county classification is based on the minority population ratio, with $Minority_c$ taking a value of one for counties where the minority ratio exceeds 50%, and zero otherwise. $\boldsymbol{X}$ consists of the remaining interaction terms from the setting and county-level characteristics including population and per capita income growth rates. Our specification incorporates county and year fixed effects to control for unobserved variations. Standard errors are clustered at the county level.

To identify whether complaint narratives contain discriminatory content, we employ a GPT-4o-based framework to classify consumer complaints (see Appendix D for methodology). Recent studies highlight that LLMs outperform traditional textual analysis methods (De Kok (2025)). Models like GPT-4 by OpenAI combine human-like comprehension capabilities with the scalability and efficiency of machine learning methods, achieving exceptional accuracy in complex classification tasks (Bai et al. (2023); Lopez-Lira and Tang (2023)). This makes it ideal for analyzing our extensive complaint dataset. Using systematically designed

prompts, we train GPT-4o to function as a specialized complaint analyzer that evaluates narratives against established discrimination indicators. Our analysis shows that 3.7% of 2015 complaint narratives are classified as containing discrimination. This figure becomes especially noteworthy given the underrepresentation of minority individuals in access to financial services. Minority individuals constitute 18% of the U.S. population, with about 17% of minority households unbanked and 30% underbanked.[24] These barriers limit minority consumers' access to formal financial services and reduce the share of minority consumers who file complaints. Against this backdrop, the observed rate of discrimination complaints is particularly striking.

[Insert Table 7 about here]

Table 7 presents the results. Columns (1) to (3) show that in minority counties with a higher ratio of discriminatory complaints, the number of branches increases by 3.5%, and the number of institutions grows by 6.7%, accompanied by a decline in market concentration compared to other minority counties with a lower ratio. Following the implementation of the disclosure policy, these changes suggest heightened competition in local financial markets. In contrast to Columns (1) to (3), we examine the differences between institutions under CFPB supervision and those not under CFPB supervision to identify which type of institution is driving the observed shifts in market competition. Columns (4) and (5) report regressions where the dependent variables are the number of branches and the number of institutions, respectively, for CFPB-supervised institutions. Columns (6) and (7) present the corresponding regressions for non-supervised institutions.

Columns (4) and (5) show a 5.6% decline in the number of branches among CFPB-supervised institutions, while the corresponding effect on the number of institutions is statistically insignificant. Although these institutions remain in the market, they reduce their branch presence, suggesting a potential deterrent effect that leads supervised institutions to scale back operations. Columns (6) and (7) reveal a strikingly different conclusion. They

[24]For more details, see: link

show that non-supervised institutions are the primary drivers of intensified local competition, with their branches expanding by 6.4%, and the number of institutions rising by 10.1%. The contrasting responses between supervised and non-supervised institutions indicate that market participants recognize and utilize information from complaint narratives, adjusting their market entry and exit strategies accordingly. For example, non-supervised banks are more willing to enter the underserved market and offer services in response to the disclosed information.

4.1.2 Customer Behavior

Customers represent another key group of market participants, as their deposit decisions directly shape the funding base of financial institutions. When they become aware of complaint narratives, they may reassess service quality and adjust their financial behavior accordingly. Informed consumers may identify institutions with poor service quality and cease their business dealings with these banks, thereby pressuring these financial institutions to improve their practices. Indeed, Figure 1 validates the public's increased attention to CFPB complaints.

To test this consumer-driven pressure, we examine branch-level deposit flows to explore whether depositors reallocate funds away from institutions exposed to discrimination-related complaint narratives. Consistent with the findings of Chen et al. (2022) that information transparency drives deposit reallocation, the disclosure policy likely works by amplifying reputational risks for banks with discriminatory practices. Specifically, when branches in minority communities are linked to complaints about unfair treatment, such as racial bias in service provision, depositors concerned about trustworthiness may withdraw their funds to avoid perceived risks, leading to measurable outflows at the branch level.

Building on this, we measure the policy impact by examining changes in deposit amounts at the branch-year level using the SOD dataset. We modify Equation (2) by adjusting the time frame to yearly and splitting treated financial institutions into two groups based on

their 2015 complaints-to-assets ratio. The first group consists of branches of institutions with discriminatory complaints as a proportion of total assets exceeding the median (*HighDiscCompl*), while the second group includes branches of institutions below the median (*LowDiscCompl*). This ratio captures the extent of discriminatory complaints faced by institutions and mitigates size-related bias by normalizing complaints relative to total assets. This approach allows us to examine how discriminatory complaints influence deposit transfers in minority communities. Table 8 presents the results.

[Insert Table 8 about here]

Table 8 confirms the presence of deposit outflows that vary in magnitude across financial institutions with different levels of discriminatory complaint severity. The triple interaction $HighDiscCompl \times Post \times Minority$ in Column (1) indicates a statistically significant 9.1% deposit decline in branches of treated institutions in minority communities with high complaint ratios, consistent with reputational penalties driving fund reallocation. While the low discriminatory complaints group also shows a negative coefficient, its smaller size and lack of significance suggest that depositors primarily penalize institutions with serious and substantiated misconduct. These findings underscore that complaint narratives influence depositor decisions and that the CFPB policy effectively channels public scrutiny toward the service quality of financial institutions. Column (2) reinforces these conclusions by introducing county-year fixed effects, with estimates remaining stable across specifications.

[Insert Figure 6 about here]

Figure 6 presents event study analysis for institutions with high and low discriminatory complaints. Neither panel exhibits pre-existing trends, bolstering causal interpretation. Panel (a) highlights a notable increase in deposit outflows in the high discriminatory complaints group immediately after disclosure. In Panel (b), institutions with few discriminatory complaints show no systematic outflow pattern, with coefficients that remain statistically indistinguishable across the event window.

4.1.3 Changes in Complaint Trends

The disclosure of complaint narratives can induce financial institutions to proactively manage their reputational risk by reducing the incidence of future complaints. To achieve this, institutions will improve service quality, increase transparency in product terms, or strengthen internal compliance mechanisms, all of which can help mitigate consumer dissatisfaction before it escalates into a formal complaint. Such a decline in complaint volumes may signal a broader, forward-looking behavioral adjustment by financial institutions, rather than a purely reactive approach to individual complaints.

In this subsection, we further explore how institutions respond to their overall complaint volume, particularly by examining how different types of complaints evolve over time. Given that the number of complaints received by financial institutions in one period may correlate with the number in the next, we test whether the autocorrelation between complaint volumes across adjacent periods changes following the disclosure policy. The analysis covers complaints in the savings, auto, and credit card markets from March 19 to December 31, 2015, providing a balanced sample period before and after the policy shock. Based on institution-month-level complaint numbers, the empirical model is specified as follows:

$$\begin{aligned} Complaints_{i,t+1} = \alpha + \beta_1 Complaints_{i,t} + \beta_2 Complaints_{i,t} \times Post_t \\ + \mu_{Institution} + \mu_{Market \times YearMonth} + \epsilon_{i,t} \end{aligned} \tag{4}$$

In this equation, $Complaints_{i,t+1}$ represents three distinct measures of complaints for institution i in month $t+1$: total complaints ($ComplNum_{i,t+1}$), complaints with narratives ($NarrComplNum_{i,t+1}$), and complaints with discriminatory narratives ($DiscComplNum_{i,t+1}$). Our specification includes three measures of complaints in month t and their interactions with a policy indicator, defined as $Complaints_{i,t} \times Post_t$, where $Post_t$ equals one for months after June 2015 when the CFPB made complaint narratives public. The coefficient β_1 measures the autocorrelation of complaints across consecutive months, while β_2 captures the

change in this autocorrelation following the policy implementation. We include institution and market-year-month fixed effects to account for unobserved heterogeneity and cluster standard errors at the institution level.

[Insert Table 9 about here]

Columns (1) to (3) in Table 9 show positive autocorrelation between current and subsequent periods across all three complaint measures. The interaction terms reveal that this autocorrelation weakens during the disclosure period, suggesting institutions enhance their complaint management practices. According to Column (1), narrative disclosure reduces the autocorrelation of total complaints by 21.3% (0.247/1.157). Column (2) shows that the autocorrelation for complaints with narratives decreases by 25.3% (0.297/1.174). Most notably, the coefficient on $DiscComplNum_{i,t} \times Post_t$ is statistically significant and negative in Column (3), indicating that autocorrelation for discriminatory complaints declines by 29.9% (0.213/0.713), the largest reduction among the three measures. This pattern aligns with our earlier findings on fairer pricing, suggesting that these adjustments are part of a consistent institutional effort to reduce exposure to negative publicity following the CFPB disclosure policy.

4.2 Heterogeneous Effects

4.2.1 Volume of Discriminatory Complaints

Institutions facing more salient or severe complaint disclosures, particularly those involving discriminatory treatment, have stronger incentives to adjust their conduct in response to reputational risk. In this subsection, we present a heterogeneity analysis that examines whether the volume of discriminatory complaints received by a financial institution influences how it adjusts its product pricing and services. When public disclosures allow stakeholders to identify discriminatory practices and institutions internalize these concerns, the policy's impact on financial product pricing (e.g., interest rates) may vary across institutions depend-

ing on the intensity of the complaints. To test this, we adapt the baseline triple-difference model from Section 3, dividing the treatment group by the severity of complaints, as defined in Table 8.

[Insert Table 10 about here]

Table 10 presents the results. Column (1) compares deposit interest rates across institutions stratified by their complaints-to-assets ratio (above- vs. below-median). Coefficient estimates reveal heterogeneous effects across these groups: the triple interaction term $HighDiscCompl \times Post \times Minority$ is statistically significant for the high discriminatory complaints group, indicating stronger policy responsiveness in this group. For the low discriminatory complaints group, the effect is weaker, consistent with the interpretation that disclosure effects primarily target institutions engaged in severe discriminatory practices.

Column (2) analyzes lending market responses through auto loan and credit card rates, incorporating product and market-year fixed effects to account for differences between loan types. The results show that branches of institutions under CFPB supervision exhibit varying policy effects depending on their complaint situations. These patterns underscore the policy's efficacy in incentivizing institutions to prioritize equitable service provision, particularly when a great intensity of complaints draws public attention to discriminatory practices.

4.2.2 Search Attention

Public attention reflects the market's awareness of complaint narrative disclosures. In this subsection, we examine whether market attention moderates the effect of the complaint narratives policy. In areas where residents pay greater attention to complaint disclosures, the policy's disciplinary and deterrent effects are likely to be more pronounced. To test this prediction, we adapt the baseline triple-difference model from Section 3, using changes in Google search interest related to the CFPB from 2014 to 2015 as a proxy for shifts in public attention following the disclosure. Treatment groups are defined based on whether the change in Google search interest is above or below the median, measured at the state

level according to the location of each financial institution's branch in 2015.

[Insert Table 11 about here]

Table 11 presents the results. Column (1) compares deposit interest rates between financial institutions that receive high versus low levels of public attention. The estimated coefficients reveal a gradual reduction in disclosure impact across these groups, with a stronger effect observed in institutions with higher attention levels compared to those with lower attention. The consistent direction of the coefficients suggests that even institutions with low public attention enhance the fairness of their financial services. Column (2) examines lending market responses through auto loan and credit card rates, incorporating product and market-institution-year fixed effects to control for variations between loan types. The results reveal that the disclosure policy significantly narrows racial gaps in loan pricing in groups with higher public attention, while showing limited effects in groups with lower attention. These findings collectively indicate that public engagement and information accessibility enhance the policy's capacity to reduce racial disparities in deposit and loan pricing.

5 Real Effects

Prior analyses primarily focus on pricing in financial products and services, but whether these changes translate into real effects on consumers' lives remains unclear. Additionally, existing studies largely rely on county-level population distributions to differentiate between minority and white communities, which may raise some concerns regarding measurement precision. In this section, we examine how disclosure policies affect households across racial groups, focusing specifically on intersectionally disadvantaged groups, particularly low-income minority households. We quantify the real policy effects through three core metrics: (1) bank account ownership from the CPS, (2) auto ownership from the ACS, and (3) confidence in credit card approval from the SHED.

We first explore racial differences in bank account ownership to assess policy effects on

fundamental financial inclusion. Second, we examine the policy's differential effects on auto ownership across racial groups, a key factor in access to economic opportunity. Third, we measure how the policy influences minority households' confidence in obtaining credit card approvals. Together, these analyses generate multidimensional evidence regarding policy efficacy in mitigating racialized financial exclusion.

5.1 Effects on Racial Gaps in Bank Account Ownership

We begin with bank account ownership, a key element of financial inclusion that provides households access to basic banking services. For low-income minority households, the absence of bank accounts restricts opportunities to build savings, establish credit histories, and secure fair loans, thereby limiting economic mobility and stability. To evaluate the effectiveness of the disclosure policy, we estimate the following model:

$$\begin{aligned} BankAccount_{i,t} =& \alpha + \beta_1 DiscCompl_i \times Post_t \\ &+ X\theta + \mu_{State} + \mu_{Year \times SimilarHousehold} + \epsilon_{i,t} \end{aligned} \tag{5}$$

The dependent variable, $BankAccount_{i,t}$, equals one if household i holds a savings or checking account in year t. We focus on low-income households in minority communities because they tend to have lower participation in financial services, particularly in bank account ownership.[25] This limited access constrains their ability to build wealth and maintain financial stability (Célerier and Matray (2019)). The key independent variable is the interaction $DiscCompl_i \times Post_t$, which captures the effect of the policy intervention based on the complaint intensity in each community. $DiscCompl_i$ equals one if the ratio of discriminatory complaints in the county where household i resides to the total county population in 2015 is above the median. $Post_t$ equals one for 2015 and later years, and zero otherwise. The vector $\boldsymbol{X}$ includes additional interaction terms from the difference-in-difference frame-

[25] A low-income household is defined as one with an income above the Federal Poverty Line (FPL) but below twice the FPL. For more information about FPL, see: the poverty line guidelines.

work, as well as county-level controls including population and per capita income growth. We control for unobserved regional differences by including state fixed effects, μ_{State}. We also include $\mu_{Year \times SimilarHousehold}$, a fixed effect that captures year-specific patterns among households with similar demographic and socioeconomic profiles. This specification improves identification by absorbing shared temporal trends among comparable households. We define *SimilarHousehold* using the interaction of household-level variables, including income level, education level, household size, and employment status (employed versus unemployed). Standard errors are clustered at both the county and year levels to correct for within-group correlation.

[Insert Table 12 about here]

Table 12 presents the regression results examining the impact of disclosing discriminatory complaints on bank account ownership across racial groups. Column (1) reports the estimates for low-income minority households. The coefficient on the interaction term $DiscCompl \times Post$ shows that, after the disclosure policy was implemented, the likelihood of account ownership increases by 4.3% among these households in counties with a high ratio of discriminatory complaints. This effect represents a meaningful change of about 5% relative to the sample mean. The result suggests that the policy has a positive impact on financial inclusion in the affected communities. Column (2) reveals the results for lower-income white households. Significant at the 10% level, the interaction term $DiscCompl \times Post$ yields a 1.9% increase in account ownership for lower-income white households, which is smaller and less precise than the corresponding effect for minority households.

5.2 Effects on Racial Gaps in Auto Ownership

Auto ownership plays a central role in economic mobility by reducing geographic barriers to opportunity. It enables individuals to access jobs, pursue education, and participate in social life. Disparities in auto ownership also reflect broader patterns of racial and economic inequality, highlighting the need for a more granular analysis. This subsection analyzes auto

ownership at the household level. Compared to county-level classifications, identifying race at the household level allows for a more accurate assessment of the policy's impact on auto ownership, especially among disadvantaged households.

In line with Equation (5), we replace the dependent variable with auto ownership, defined as an indicator for whether household i owns a vehicle in year t. Table 13 presents the results examining the effects of complaints disclosure across racial groups. The coefficient on the interaction term $DiscCompl \times Post$ in Column (1) shows that, after the policy was implemented, the likelihood of auto ownership increases by 1.1% among low-income minority households in counties with high levels of publicly disclosed discriminatory practices. The change is statistically significant and represents an increase of 3% of one standard deviation (1.3% relative to the sample mean). These estimates suggest an improvement in vehicle access for minority households affected by the disclosure policy. In contrast, Column (2) reports the results for white households. The coefficient on the interaction term $DiscCompl \times Post$ is not statistically significant, indicating that the policy does not measurably affect auto ownership in this group. The difference in results underscores the policy's relevance for improving vehicle access in minority households, where such access may be more limited.

[Insert Table 13 about here]

5.3 Effects on Racial Gaps in Credit Card Approval Confidence

Access to credit cards is a key indicator of financial inclusion, as it enables individuals to establish credit history, obtain affordable loans, and work toward long-term financial goals. Following the empirical framework in Equation (5), we examine households' self-reported confidence in credit card approval, which reflects a combined assessment of their own financial profile and the perceived accessibility of the credit market they face.[26] This variable is recorded on a three-point scale: not confident, somewhat confident, and very confident, with values ranging from 1 to 3. This analysis allows us to evaluate whether

[26] In the survey, location information for households reporting credit card approval confidence is available only at the state level.

the disclosure policy improves financial confidence among low-income minority households, a group often underserved in credit markets.

[Insert Table 14 about here]

Table 14 presents estimates of how the disclosure of discriminatory complaints affects credit card approval confidence across racial groups. As shown in Column (1), the coefficient on the interaction term $DiscCompl \times Post$ indicates that, after the policy was implemented, confidence in credit card approval increased among low-income minority households. Specifically, their confidence rises by 0.286 points on the ordinal scale, representing a change of approximately 14.9% relative to the sample mean. Column (2) reports a statistically significant but negative coefficient for white households, suggesting that the disclosure policy may reduce perceived credit access for this group by offsetting their pre-existing advantage.

To sum up, financial institutions in regions with more discriminatory complaints appear more responsive to such issues, resulting in improved outcomes for low-income minority households. Evidence from bank account ownership, auto ownership, and credit card approval confidence suggests that greater transparency through complaint disclosure encourages institutions to enhance service quality. These improvements, likely driven by disciplinary and deterrent effects, contribute to broader financial inclusion.

6 Additional Analyses

This section provides additional analyses of the role of CFPB complaint narrative disclosures. First, we examine whether publicly releasing complaint narratives improves the quality of financial services received by Asian consumers during the COVID-19 pandemic. Second, we introduce an online ranking system that increases transparency by showing the extent of racial disparities across financial institutions. The system uses results from statistical analyses to help underserved consumer groups make more informed decisions.

6.1 Asian Hate During the COVID-19 Period

Asian hate began to rise in early 2020 and continued through 2021. It is driven by several factors, including economic stress, long-standing societal bias, and the widespread circulation of misinformation about the origin of the COVID-19 virus. During the pandemic, Asian individuals faced persistent threats to personal safety, including verbal harassment and civil rights violations, which were frequently reported (Jeung et al. (2021)). Existing research shows that Asian hate lowers workplace efficiency and increases pessimism among Asian professionals in the financial industry (Agarwal et al. (2023); Qiao et al. (2023)). Our analysis suggests that a complaint disclosure system can serve as an effective tool to address the unfair treatment of Asian consumers in financial services.

To examine the effect of the disclosure policy during the COVID-19 pandemic, we include an interaction term following Equation (2) (see Appendix E for details). The results are reported in Table A13. Across deposit products, institutions supervised by the CFPB offer more favorable deposit rates to Asian consumers, suggesting that disclosing complaint narratives helps reduce deposit rate gaps over this period.

6.2 Online Rank

Our findings show that disclosure policies play an important role in improving the financial services received by minority consumers by promoting transparency and accountability. We develop a ranking system to evaluate how financial institutions treat communities with different racial compositions, focusing on disparities between minority and white areas. This platform builds on prior work and already provides a comprehensive ranking of mortgage lenders (Li (2023)). Our recent extension offers a detailed analysis of how local branches engage with racially diverse neighborhoods, helping to promote transparency and equity in financial services.[27] Figure A7 shows an example of the online platform interface. It displays

[27]For more details, see: `link`

a snapshot of financial institutions ranked by the size of racial disparities in deposit interest rates (see Appendix F for details).

Our ranking system evaluates financial branches based on four key financial indicators: deposit rates, maintenance fees, auto loan rates, and credit card rates. We compare branches in minority and white areas while controlling for branch characteristics, time effects, and state-level factors to assess how racial composition affects financial product pricing. By identifying differences in financial offerings across demographic areas, the system aims to help minority consumers avoid discriminatory treatment and improve access to fair financial services.

7 Conclusion

This paper investigates the impact of the CFPB's 2015 disclosure of complaint narratives on racial disparities in financial services. We begin by evaluating the market-wide impact of the policy using a difference-in-differences framework and find that, for treated institutions, it raises deposit rates and lowers loan rates, indicating a general shift toward more consumer-friendly pricing. To assess its effects on racial disparities, we then employ a triple-difference design that captures the policy's impact across both the savings and lending markets. After the disclosure, minority communities benefit in several ways. In the savings market, they receive higher interest rates and pay lower maintenance fees. In the auto loan and credit card markets, they are offered lower interest rates. We further examine the channels that drive the policy's effectiveness. Our analysis shows that the intensity of discriminatory practices disclosed in a region is positively related to competition in local financial markets, especially the entry of institutions not subject to CFPB supervision. We also find that deposit outflows are related to institutions' discriminatory practices, indicating that minority customers respond to perceived unfair treatment. Motivated by concerns over financial and reputational losses, institutions that received complaints experience a decline in

complaints after the narratives became public, which reflects a reduction in future discriminatory behavior. In addition, we examine the policy's real effects. For low-income minority households, the disclosure increases bank account ownership, auto ownership, and confidence in credit card approval. To improve the practical relevance of the policy, we provide online rankings of racial gaps across financial institutions and products.

Our findings highlight the important role of quality-based information disclosure in financial services. Disclosing negative information about service quality can lead to better outcomes for disadvantaged consumers. This suggests that consumers may benefit from allowing narratives to be disclosed when filing complaints with regulators. Doing so enables them to resolve issues more effectively by leveraging social supervision in addition to regulatory oversight.

The findings of this study have important implications for policymakers and regulators worldwide. Approximately 93% of developed countries have regulatory entities that handle customer complaints in financial services (Li (2023)). However, outside of the United States, few financial regulators publicly share consumer complaint information. The results show that public disclosure of complaints can reduce discriminatory and unfair treatment in the U.S. financial system. Other countries may take guidance from this policy and design approaches to manage and disclose complaints. Adopting such practices may support global efforts to promote equity and inclusion.

References

Acharya, Viral V, and Stephen G Ryan, 2016, Banks financial reporting and financial system stability, *Journal of Accounting Research* 54, 277–340.

Agarwal, Vikas, Wei Jiang, Yuchen Luo, and Hong Zou, 2023, The real effect of sociopolitical racial/ethnic animus: Mutual fund manager performance during the AAPI hate, Working paper.

Bai, John Jianqiu, Nicole M Boyson, Yi Cao, Miao Liu, and Chi Wan, 2023, Executives vs. chatbots: Unmasking insights through human-AI differences in earnings conference Q&A, Working paper.

Bartlett, Robert, Adair Morse, Richard Stanton, and Nancy Wallace, 2022, Consumer-lending discrimination in the fintech era, *Journal of Financial Economics* 143, 30–56.

Barwick, Panle Jia, Shanjun Li, Liguo Lin, and Eric Yongchen Zou, 2024, From fog to smog: The value of pollution information, *American Economic Review* 114, 1338–1381.

Begley, Taylor A, and Amiyatosh Purnanandam, 2021, Color and credit: Race, regulation, and the quality of financial services, *Journal of Financial Economics* 141, 48–65.

Bennedsen, Morten, Elena Simintzi, Margarita Tsoutsoura, and Daniel Wolfenzon, 2022, Do firms respond to gender pay gap transparency?, *The Journal of Finance* 77, 2051–2091.

Bertomeu, Jeremy, Igor Vaysman, and Wenjie Xue, 2021, Voluntary versus mandatory disclosure, *Review of Accounting Studies* 26, 658–692.

Butler, Alexander W, Erik J Mayer, and James P Weston, 2023, Racial disparities in the auto loan market, *The Review of Financial Studies* 36, 1–41.

Célerier, Claire, and Adrien Matray, 2019, Bank-branch supply, financial inclusion, and wealth accumulation, *The Review of Financial Studies* 32, 4767–4809.

CFPB, 2015, Disclosure of consumer complaint narrative data, *Federal Register* 80, 15572–15583, Docket No. CFPB-2014-0016. Final Policy Statement.

Chava, Sudheer, Rohan Ganduri, Nikhil Paradkar, and Linghang Zeng, 2023, Shocked by bank funding shocks: Evidence from consumer credit cards, *The Review of Financial Studies* 36, 3906–3952.

Chen, Qi, Itay Goldstein, Zeqiong Huang, and Rahul Vashishtha, 2022, Bank transparency and deposit flows, *Journal of Financial Economics* 146, 475–501.

Chen, Yi-Chun, Mingyi Hung, and Yongxiang Wang, 2018, The effect of mandatory csr disclosure on firm profitability and social externalities: Evidence from china, *Journal of Accounting and Economics* 65, 169–190.

Cohen-Cole, Ethan, 2011, Credit card redlining, *Review of Economics and Statistics* 93, 700–713.

d'Avernas, Adrien, Andrea L Eisfeldt, Can Huang, Richard Stanton, and Nancy Wallace, 2023, The deposit business at large vs. small banks, Working paper.

De Kok, T., 2025, ChatGPT for textual analysis? how to use generative LLMs in accounting research, *Management Science, Forthcoming*.

DeFusco, Anthony A, Stephanie Johnson, and John Mondragon, 2020, Regulating household leverage, *The Review of Economic Studies* 87, 914–958.

Dlugosz, Jennifer, Yong Kyu Gam, Radhakrishnan Gopalan, and Janis Skrastins, 2024, Decision-making delegation in banks, *Management Science* 70, 3281–3301.

Döttling, Robin, 2025, Bank capital regulation in a zero interest environment, *Journal of the European Economic Association* 23, 1028–1059.

Dou, Yiwei, Mingyi Hung, Guoman She, and Lynn Linghuan Wang, 2024, Learning from peers: Evidence from disclosure of consumer complaints, *Journal of Accounting and Economics* 77, 101620.

Dou, Yiwei, and Yongoh Roh, 2024, Public disclosure and consumer financial protection, *Journal of Financial and Quantitative Analysis* 59, 2164–2198.

Drechsler, Itamar, Alexi Savov, and Philipp Schnabl, 2017, The deposits channel of monetary policy, *The Quarterly Journal of Economics* 132, 1819–1876.

Dwyer, Rachel E, 2018, Credit, debt, and inequality, *Annual Review of Sociology* 44, 237–261.

Faber, Jacob William, and Terri Friedline, 2020, The racialized costs of "traditional" banking in segregated america: Evidence from entry-level checking accounts, *Race and Social Problems* 12, 344–361.

Fennis, Bob M, and Wolfgang Stroebe, 2014, Softening the blow: Company self-disclosure of negative information lessens damaging effects on consumer judgment and decision making, *Journal of Business Ethics* 120, 109–120.

Fuster, Andreas, Matthew C Plosser, and James I Vickery, 2021, Does CFPB oversight crimp credit?, Working paper.

Goldstein, Itay, and Haresh Sapra, 2014, Should banks' stress test results be disclosed? an analysis of the costs and benefits, *Foundations and Trends® in Finance* 8, 1–54.

Grembi, Veronica, Tommaso Nannicini, and Ugo Troiano, 2016, Do fiscal rules matter?, *American Economic Journal: Applied Economics* 1–30.

Guiso, Luigi, Andrea Pozzi, Anton Tsoy, Leonardo Gambacorta, and Paolo Emilio Mistrulli, 2022, The cost of steering in financial markets: Evidence from the mortgage market, *Journal of Financial Economics* 143, 1209–1226.

Haendler, Charlotte, and Rawley Heimer, 2025, The hidden costs of financial services: Consumer complaints and financial restitution, Working paper.

Hayes, Rachel M, Feng Jiang, and Yihui Pan, 2021, Voice of the customers: Local trust

culture and consumer complaints to the CFPB, *Journal of Accounting Research* 59, 1077–1121.

Jeung, Russell, Aggie Yellow Horse, Tara Popovic, and Richard Lim, 2021, Stop AAPI hate national report, *Stop AAPI hate* 44, 19–26.

Jin, Ginger Zhe, and Phillip Leslie, 2003, The effect of information on product quality: Evidence from restaurant hygiene grade cards, *The Quarterly Journal of Economics* 118, 409–451.

Leuz, Christian, and Peter D Wysocki, 2016, The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research, *Journal of Accounting Research* 54, 525–622.

Li, Xiang, 2023, Does the disclosure of consumer complaints reduce racial disparities in the mortgage lending market?, Working paper.

Lin, Leming, 2020, Bank deposits and the stock market, *The Review of Financial Studies* 33, 2622–2658.

Lopez-Lira, Alejandro, and Yuehua Tang, 2023, Can ChatGPT forecast stock price movements? return predictability and large language models, Working paper.

Mazur, Laurel Celastine, 2022, Are the voices of customers louder when they are seen? evidence from CFPB complaints, (University of Maryland, College Park, Maryland).

Neugebauer, R., and R. Williams, 2015, Reform the CFPB to better protect consumers, Mimeo, U.S. Congress.

Qiao, Yankuo, Qinzheng Xu, and Tengfei Zhang, 2023, COVID-19 pandemic, hate crimes, and analyst forecast quality, Working paper.

Scott, Maura L, Sterling A Bone, Glenn L Christensen, Anneliese Lederer, Martin Mende, Brandon G Christensen, and Marina Cozac, 2024, Revealing and mitigating racial bias and discrimination in financial services, *Journal of Marketing Research* 61, 598–618.

Servon, Lisa, 2017, *The unbanking of America: How the new middle class survives* (Houghton Mifflin Harcourt, Boston, MA).

Tomar, Sorabh, 2023, Greenhouse gas disclosure and emissions benchmarking, *Journal of Accounting Research* 61, 451–492.

Varga, Marton, and Paulo Albuquerque, 2024, The impact of negative reviews on online search and purchase decisions, *Journal of Marketing Research* 61, 803–820.

Wang, Olivier, 2025, Banks, low interest rates, and monetary policy transmission, *The Journal of Finance* 80, 1379–1416.

Yi, Yu, 2022, Bank capital, bank concentration, and risk taking, Working paper.

Zhang, Jianqiang, and Krista J Li, 2021, Quality disclosure under consumer loss aversion, *Management Science* 67, 5052–5069.

Figures and Tables

Figure 1. Trend in Google Search Interest for CFPB Complaint

This figure presents the trends in Google search interest for "CFPB complaint" (red line) and "CFPB enforcement" (gray line) from 2011 to 2022. To enhance clarity, we smooth the search indices at the monthly level. The vertical axis represents relative search interest, where a value of 100 corresponds to peak popularity, and a value of 0 indicates insufficient attention. For instance, a value of 60 suggests 60% of peak popularity. The horizontal axis represents time in monthly intervals. The vertical gray line indicates June 2015, when the disclosure of complaint narratives was implemented.

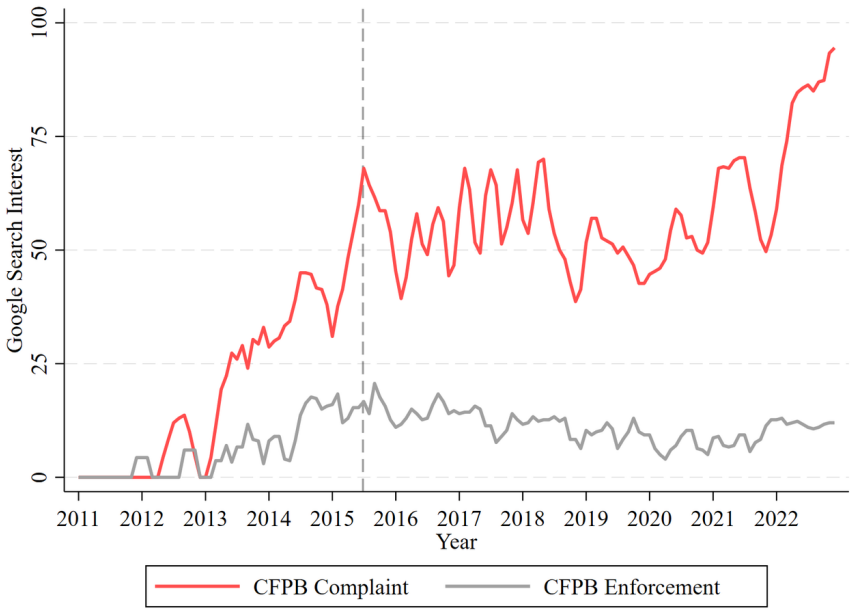


Figure 2. Event Study Estimates of the Effects of CFPB Disclosure on Racial Gaps in Deposit Interest Rates

This figure illustrates the estimates of the event study examining the effects of CFPB disclosure on racial gaps in deposit interest rates. For estimation purposes, the quarter of the disclosure is treated as the baseline period. The vertical axis shows the size of the coefficients for the triple-interaction terms, while the horizontal axis represents relative time periods. The regression specification used to generate this figure is consistent with that in Column (1) of Table 3. Black points represent the coefficient estimates for each period, and the black vertical lines denote the 95% confidence intervals.

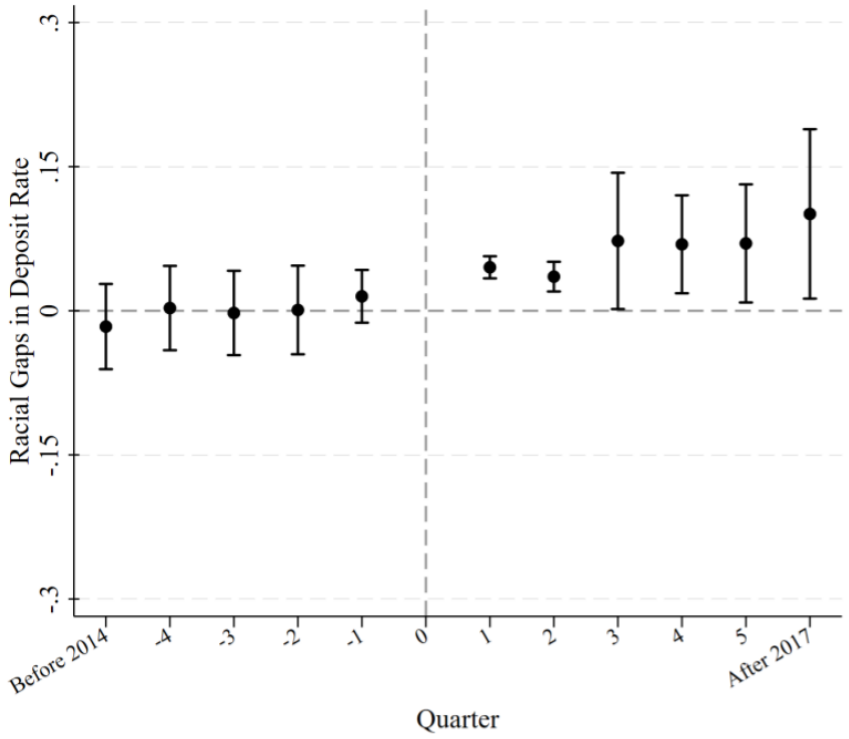


Figure 3. Event Study Estimates of the Effects of CFPB Disclosure on Racial Gaps in Deposit Fees

This figure illustrates the estimates of the event study examining the effects of CFPB disclosure on racial gaps in deposit fees. For estimation purposes, the quarter of the disclosure is treated as the baseline period. The vertical axis shows the size of the coefficients for the triple-interaction terms, while the horizontal axis represents relative time periods. The regression specification used to generate this figure is consistent with that in Column (1) of Table 4. Black points represent the coefficient estimates for each period, and the black vertical lines denote the 95% confidence intervals.

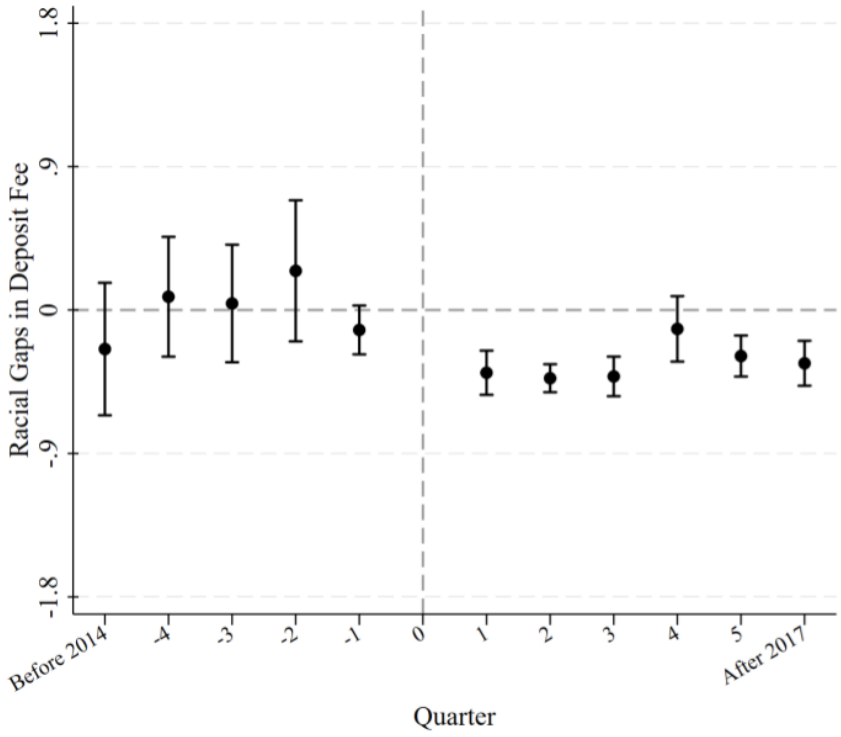


Figure 4. Event Study Estimates of the Effects of CFPB Disclosure on Racial Gaps in Auto Loan Rates

This figure illustrates the estimates of the event study examining the effects of CFPB disclosure on racial gaps in auto loan interest rates. For estimation purposes, the quarter of the disclosure is treated as the baseline period. The vertical axis shows the size of the coefficients for the triple-interaction terms, while the horizontal axis represents relative time periods. The regression specification used to generate this figure is consistent with that in Column (1) of Table 5. Black points represent the coefficient estimates for each period, and the black vertical lines denote the 95% confidence intervals.

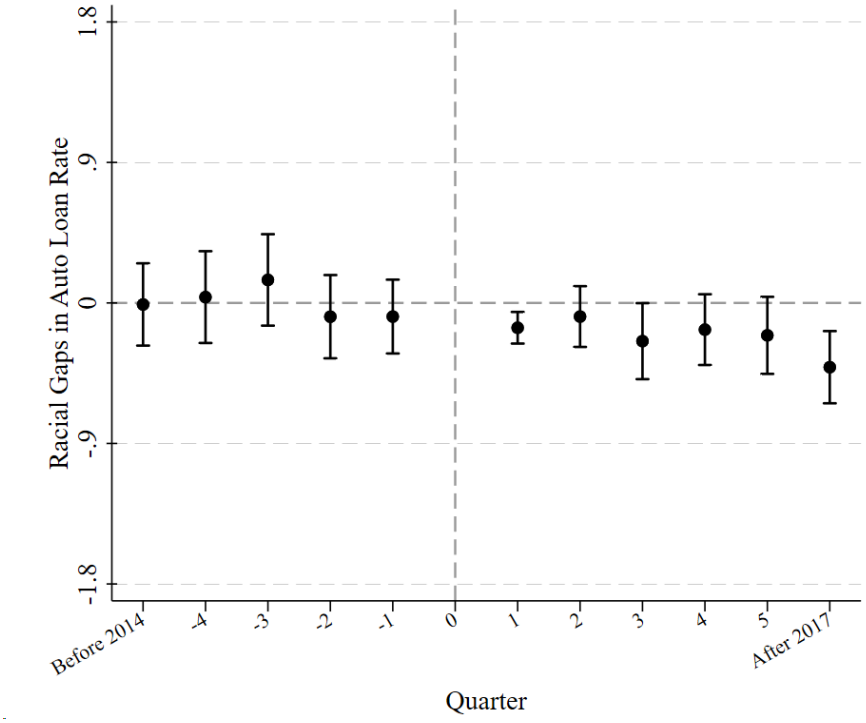


Figure 5. Event Study Estimates of the Effects of CFPB Disclosure on Racial Gaps in Credit Card Rates

This figure illustrates the estimates of the event study examining the effects of CFPB disclosure on racial gaps in credit card interest rates. For estimation purposes, the quarter of the disclosure is treated as the baseline period. The vertical axis shows the size of the coefficients for the triple-interaction terms, while the horizontal axis represents relative time periods. The regression specification used to generate this figure is consistent with that in Column (1) of Table 6. Black points represent the coefficient estimates for each period, and the black vertical lines denote the 95% confidence intervals.

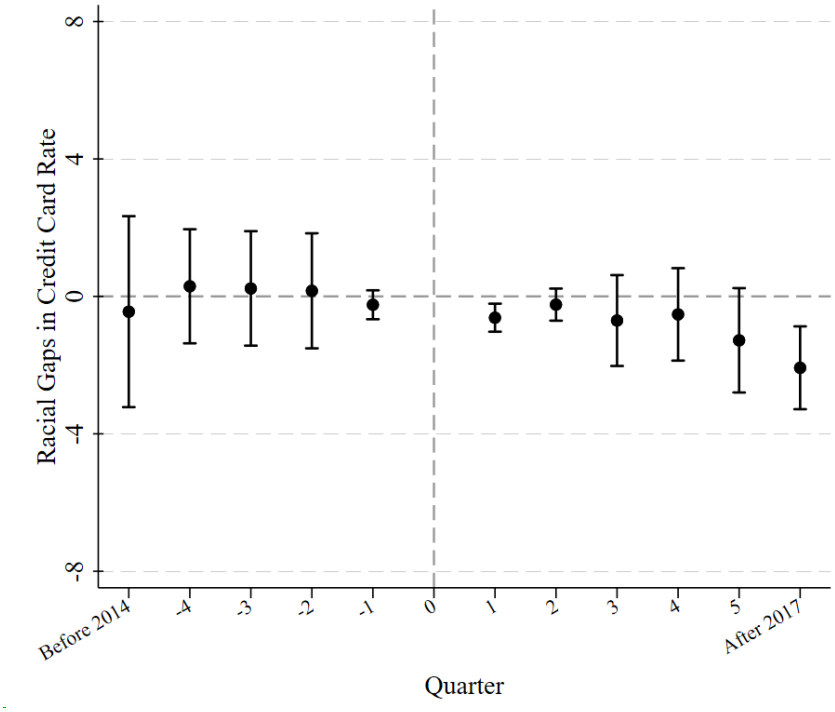
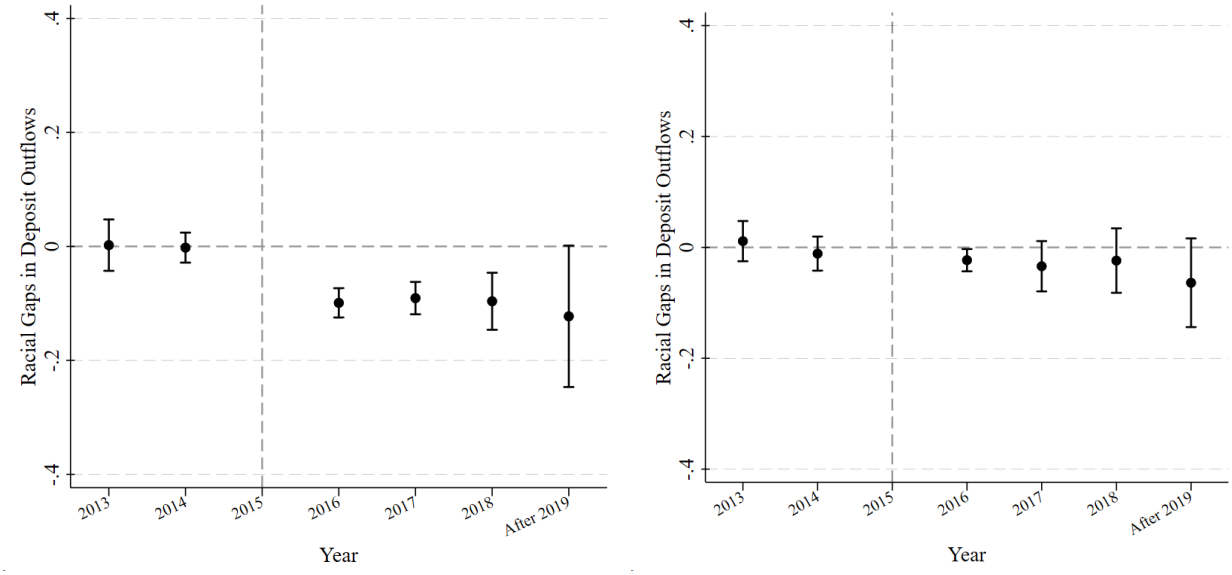


Figure 6. Event Study Estimates of the Effects of CFPB Disclosure on Deposit Outflows in Minority Communities

This figure illustrates the estimates of the event study examining the effects of CFPB disclosure on deposit outflows. For estimation purposes, the year of the disclosure is treated as the baseline period. The vertical axis shows the size of the coefficients for the triple-interaction terms, while the horizontal axis represents relative time periods. The regression specification used to generate this figure is consistent with that in Column (1) of Table 8. Panel (a) presents the event study estimates for the triple-interaction term $HighDiscCompl \times Post \times Minority$, and Panel (b) illustrates the results for $LowDiscCompl \times Post \times Minority$. Black points represent the coefficient estimates for each period, and the black vertical lines denote the 95% confidence intervals.



(a) High Discriminatory Complaints

(b) Low Discriminatory Complaints

Table 1. Summary Statistics

This table reports the summary statistics for the key variables in our sample from 2013 to 2022. Panel A presents branch-level variables. These include deposit, auto loan, and credit card interest rates; minimum account balances required to avoid maintenance fees; and deposit amounts at each branch. We obtain interest rates and fee information from RateWatch, and deposit amounts from the Summary of Deposits (SOD) database. In the savings market, our main variable is the interest rate for the "12MCD10K" product, which refers to 12-month Certificates of Deposit (CDs) with a $10,000 minimum. Appendix Table A2 lists all eight CD and Money Market (MM) products used in our analysis. We also report the minimum account balances required to avoid maintenance fees on savings and checking accounts. In the lending market, we focus on interest rates for auto loans and credit cards. For auto loans, we use the rates for short-term (36 months) and long-term (72 months) loans. For credit cards, we use the interest rates for standard and premium cards. For deposit amounts, we use total branch-level deposits as of June 30 each year, based on the SOD database. Among these five categories of indicators, deposit amounts are measured annually, while the remaining variables are measured quarterly. Panel B summarizes quarterly institution-level data from the Call Reports. The key variables are deposit and loan rates, defined as interest expense per unit of deposit funding and interest income per unit of loan issuance, respectively. Panel C reports household-level variables, which are measured annually. These include the share of households with bank accounts (from the Current Population Survey, CPS), the share of households with cars (from the American Community Survey, ACS), and self-reported confidence in credit card approval (from the Survey of Household Economics and Decisionmaking, SHED). Panel D presents county-level characteristics, all measured annually. These variables are sourced from the Bureau of Economic Analysis (BEA) and the Census Bureau. They include the share of the non-white population, the total county population, and the growth rate of per capita income.

	(1)	(2)	(3)	(4)	(5)
	Source	N	Mean	Median	Std. Dev
Panel A. Branch-Level Characteristics					
Savings Market - *Deposit Interest Rate (%)*					
12MCD10K	RateWatch	310,883	0.52	0.40	0.45
Savings Market - *Amount to Avoid Fee ($)*					
Savings Account	RateWatch	15,570	235.09	100	4023.67
Checking Account		24,680	2,777.32	1000	7949.14
Loan Market - *Auto Loan Interest Rate (%)*					
36M	RateWatch	234,346	4.12	3.75	1.64
72M		27,826	3.83	3.74	1.01
Loan Market - *Credit Card Loan Interest Rate (%)*					
Standard Credit Card Rate	RateWatch	25,370	11.98	11.99	2.57
Premium Credit Card Rate		6,518	10.57	10.25	2.08
Savings Market - *Deposit Amount ($M)*					
Amount	SOD	521,851	99.99	42.83	1000.05

Continued on next page

Table 1 - *Continued from previous page*

Panel B. Institution-Level Characteristics					
Deposit Rate *(%)*	Call	227,230	0.75	0.50	0.75
Loan Rate *(%)*	Report	225,639	12.73	12.17	6.28
Panel C. Household-Level Characteristics					
Bank Account Ownership	CPS	12,159	0.92	1	0.28
Auto Ownership	ACS	1,067,572	0.85	1	0.36
Credit Card Approval Confidence	SHED	11,750	2.07	2	0.85
Panel D. County-Level Characteristics					
Minority Ratio *(%)*	BEA	30,868	18.77	10.65	19.03
Population *(K)*	Census	30,868	104.33	25.71	333.43
Per Capita Income Growth Rate *(%)*	Bureau	30,868	3.82	3.58	5.65

Table 2. Effects of CFPB Disclosure on Interest Rates

This table presents the effects of CFPB disclosure on interest rates. The estimation sample is constructed at the institution-year-quarter level. Columns (1) and (2) report results using deposit rates, while Columns (3) and (4) use loan rates as the outcome. All columns control for institution-level characteristics, including total assets, domestic deposits, total loans, return on assets (ROA), and net interest margin (NIM). Institution and state-year-quarter fixed effects are also included. In Columns (1) and (3), the main coefficient of interest is $Treat \times Post$, which captures the effect of disclosure on interest rates in treated institutions compared to control institutions. In Columns (2) and (4), we divide treated institutions into two groups based on the volume of narrative complaints they received in 2015: one with above-median volumes and the other with below-median volumes. Standard errors are clustered at the institution level and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	Deposit Rate		Loan Rate	
Treat×*Post*	0.452***		-0.331**	
	(0.048)		(0.169)	
HighNarrComp×*Post*		0.498***		-0.651**
		(0.078)		(0.310)
LowNarrComp×*Post*		0.416***		-0.077
		(0.060)		(0.203)
Institution Characteristics	YES	YES	YES	YES
Institution FE	YES	YES	YES	YES
State-Year-Quarter FE	YES	YES	YES	YES
Observations	225,480	225,480	225,480	225,480
R-squared	0.747	0.747	0.958	0.958

Table 3. Effects of CFPB Disclosure on Racial Gaps in Deposit Interest Rates

This table presents the effects of CFPB disclosure on racial gaps in deposit interest rates, focusing on mainstream products. Columns (1) and (2) examine the "12MCD10K" product. Columns (3) and (4) include eight types of CDs and MMs. The estimation sample is based on branch-level data aggregated by year-quarter. All columns include branch and year-quarter fixed effects. Each observation is weighted by the annual county population. Columns (1) and (3) control for county-level demographic variables, including the logarithm of total population and the growth rate of per capita income. These two columns also include institution-year fixed effects. Columns (2) and (4) instead include county-institution-year fixed effects. The main coefficient of interest is $Treat \times Post \times Minority$, which captures the effect of disclosure on racial gaps in deposit rates in treated institutions compared to those in control institutions. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	Deposit Rate			
VARIABLES	12MCD10K		CDs and MMs	
Treat×Post×Minority	0.063**	0.028***	0.039*	0.028***
	(0.025)	(0.001)	(0.018)	(0.002)
County Characteristics	YES	-	YES	-
Branch FE	YES	YES	YES	YES
Product FE	-	-	YES	YES
Year-Quarter FE	YES	YES	YES	YES
Institution-Year FE	YES	-	YES	-
County-Institution-Year FE	-	YES	-	YES
Observations	309,372	309,078	2,135,586	2,135,579
R-squared	0.879	0.883	0.735	0.738

Table 4. Effects of CFPB Disclosure on Racial Gaps in Deposit Account Fees

This table presents the effects of CFPB disclosure on racial gaps in deposit account fees, focusing on the minimum balances required to avoid fees. The estimation sample is based on branch-level data aggregated by year-quarter. Columns (1) and (2) examine savings accounts, while Columns (3) and (4) report results for checking accounts. All columns include branch and year-quarter fixed effects. Each observation is weighted by the annual county population. Columns (1) and (3) control for county-level demographic variables, including the logarithm of total population and the growth rate of per capita income. These two columns also include institution-year fixed effects. Columns (2) and (4) instead include county-institution-year fixed effects. The main coefficient of interest is $Treat \times Post \times Minority$, which captures the effect of disclosure on racial gaps in account fees in treated institutions compared to those in control institutions. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	Amount to Avoid Fee			
VARIABLES	Savings Account		Checking Account	
Treat×Post×Minority	-0.305***	-0.291***	-0.343**	-0.687***
	(0.092)	(0.016)	(0.146)	(0.024)
County Characteristics	YES	-	YES	-
Branch FE	YES	YES	YES	YES
Year-Quarter FE	YES	YES	YES	YES
Institution-Year FE	YES	-	YES	-
County-Institution-Year FE	-	YES	-	YES
Observations	8,976	8,777	10,251	10,027
R-squared	0.987	0.987	0.963	0.970

Table 5. Effects of CFPB Disclosure on Racial Gaps in Auto Loan Rates

This table presents the effects of CFPB disclosure on racial gaps in auto loan interest rates, focusing on products with terms of 36 months and 72 months. The estimation sample is based on branch-level data aggregated by year-quarter. All columns include fixed effects for branch, term, and year-quarter. Each observation is weighted by the annual county population. Column (1) controls for county-level demographic variables, including the logarithm of total population and the growth rate of per capita income. It also includes institution-year fixed effects. Column (2) includes county-institution-year fixed effects instead. The main coefficient of interest is $Treat \times Post \times Minority$, which captures the effect of disclosure on racial gaps in auto loan interest rates in treated institutions compared to those in control institutions. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
VARIABLES	Auto Loan Rate	
Treat×*Post*×*Minority*	-0.103***	-0.068***
	(0.031)	(0.015)
County Characteristics	YES	-
Branch FE	YES	YES
Term FE	YES	YES
Year-Quarter FE	YES	YES
Institution-Year FE	YES	-
County-Institution-Year FE	-	YES
Observations	261,902	261,878
R-squared	0.920	0.922

Table 6. Effects of CFPB Disclosure on Racial Gaps in Credit Card Rates

This table presents the effects of CFPB disclosure on racial gaps in credit card interest rates, focusing on standard and premium card products. The estimation sample is based on branch-level data aggregated by year-quarter. All columns include fixed effects for branch, product, and year-quarter. Each observation is weighted by the annual county population. Column (1) controls for county-level demographic variables, including the logarithm of total population and the growth rate of per capita income. It also includes institution-year fixed effects. Column (2) includes county-institution-year fixed effects instead. The main coefficient of interest is $Treat \times Post \times Minority$, which captures the effect of disclosure on racial gaps in credit card interest rates in treated institutions compared to those in control institutions. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
VARIABLES	Credit Card Rate	
Treat×*Post*×*Minority*	-0.372***	-0.370***
	(0.098)	(0.004)
County Characteristics	YES	-
Branch FE	YES	YES
Product FE	YES	YES
Year-Quarter FE	YES	YES
Institution-Year FE	YES	-
County-Institution-Year FE	-	YES
Observations	30,428	30,408
R-squared	0.916	0.918

Table 7. Impact of CFPB Disclosure on Local Competition

This table presents the effects of CFPB disclosure on competitor entry in minority communities. The analysis is conducted at the county-year level, with local market structure measured by the number of branches, the number of institutions, and market concentration (HHI). Columns (1) to (3) report results for all institutions in each county. Columns (4) and (5) focus on CFPB-supervised institutions, and Columns (6) and (7) report results for institutions not subject to CFPB supervision. The variable *HighDiscCompl* equals one for counties with above-median levels of discriminatory complaints as a share of the county population in 2015, and zero otherwise. All columns control for county-level demographic variables, including the logarithm of total population and the growth rate of per capita income. County and year fixed effects are also included. The main coefficient of interest, $HighDiscCompl \times Post \times Minority$, captures the effect of disclosure on local market structure in minority counties with high levels of discriminatory complaints, relative to counties with low levels of discriminatory complaints. Standard errors are clustered at the county level and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All			Supervised		Non-Supervised	
VARIABLES	Branch Num	Institution Num	HHI	Branch Num	Institution Num	Branch Num	Institution Num
HighDiscCompl ×*Post*×*Minority*	0.035*	0.067**	-0.019**	-0.056*	-0.019	0.064***	0.101**
	(0.020)	(0.028)	(0.007)	(0.029)	(0.018)	(0.024)	(0.046)
County Characteristics	YES	YES	YES	YES	YES	YES	YES
County FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Observations	29,713	29,713	29,713	20,481	20,481	29,380	29,232
R-squared	0.995	0.989	0.970	0.991	0.983	0.994	0.985

Table 8. Effects of CFPB Complaint Disclosure on Deposit Outflows

This table presents the effects of CFPB disclosure on deposit outflows in minority communities under different complaint conditions. The estimation sample is based on deposit amounts at the branch-year level. The dependent variable is the logarithm of deposit amounts. In the estimation, we divide treated institutions into two groups based on the volume of complaints they received relative to their total assets in 2015. The first group includes branches of institutions with above-median levels of discriminatory complaints as a share of total assets. The second group consists of branches of institutions with below-median levels. Columns (1) and (2) include branch and institution-year fixed effects. Column (1) also controls for county-level demographic variables, including the logarithm of total population and the growth rate of per capita income. Column (2) includes county-year fixed effects. All interaction terms in the triple-difference specification are included, and only the two key interaction terms are reported in the table. $HighDiscCompl \times Post \times Minority$ identifies whether disclosure disproportionately increases deposit outflows in minority communities, relative to white communities, among institutions with a strong pattern of discriminatory behavior. $LowDiscCompl \times Post \times Minority$ captures the effect for institutions with relatively fewer discriminatory practices. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
VARIABLES	Deposit Amount	
HighDiscCompl×Post×Minority	-0.091***	-0.093**
	(0.027)	(0.031)
LowDiscCompl×Post×Minority	-0.035	-0.004
	(0.034)	(0.034)
County Characteristics	YES	-
Branch FE	YES	YES
Institution-Year FE	YES	YES
County-Year FE	-	YES
Observations	500,952	498,800
R-squared	0.947	0.951

Table 9. Effects of CFPB Disclosure on Complaint Trends

This table presents the effects of CFPB disclosure on complaint volumes. The analysis covers complaints from three core markets, namely savings, auto, and credit cards, during the period from March 19, 2015, to December 31, 2015. The estimation sample is based on institution-month-level data for three types of complaints: all complaints ($ComplNum_{t+1}$), complaints with narratives ($NarrComplNum_{t+1}$), and complaints with discriminatory narratives ($DiscComplNum_{t+1}$). These serve as the dependent variables, measured in period $t+1$. The main independent variables include contemporaneous complaint volumes and their interactions with $Post_t$, which captures the effect of disclosure on complaint trends. $Post_t$ equals one for periods after June 2015, representing the period when the CFPB began publicly releasing complaint narratives. All columns include fixed effects for institution and market-year-month. Standard errors are clustered at the institution level and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
VARIABLES	$ComplNum_{t+1}$	$NarrComplNum_{t+1}$	$DiscComplNum_{t+1}$
$ComplNum_t$	1.157***		
	(0.039)		
$ComplNum_t \times Post_t$	-0.247***		
	(0.053)		
$NarrComplNum_t$		1.174***	
		(0.046)	
$NarrComplNum_t \times Post_t$		-0.297***	
		(0.054)	
$DiscComplNum_t$			0.713***
			(0.049)
$DiscComplNum_t \times Post_t$			-0.213***
			(0.074)
Institution FE	YES	YES	YES
Market-Year-Month FE	YES	YES	YES
Observations	10,935	10,935	10,935
R-squared	0.956	0.938	0.508

Table 10. Heterogeneous Effects of CFPB Disclosure on Racial Gaps in Interest Rates: High vs. Low Discrimination Complaints

This table presents the heterogeneous effects of CFPB disclosure on racial gaps in deposit and loan interest rates under different complaint conditions. The estimation sample is based on branch-level data aggregated by year-quarter. In the estimation, we divide treated institutions into two groups based on the volume of discriminatory complaints they received relative to their total assets in 2015. The first group includes branches of institutions with above-median levels of discriminatory complaints as a share of total assets. The second group consists of branches of institutions with below-median levels. Column (1) reports results using deposit interest rates, while Column (2) reports results using combined auto loan and credit card rates. Both columns control for county-level demographic variables, including the logarithm of total population and the growth rate of per capita income, along with branch and year-quarter fixed effects. Column (1) also controls for institution-year fixed effects, while Column (2) incorporates product and market-institution-year fixed effects. All interaction terms in the triple-difference specification are included, and only the two key interaction terms are shown in the table. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
VARIABLES	Deposit Rate	Loan Rate
HighDiscCompl×*Post*×*Minority*	0.138**	-0.399***
	(0.050)	(0.044)
LowDiscCompl×*Post*×*Minority*	0.058*	-0.094
	(0.028)	(0.064)
County Characteristics	YES	YES
Branch FE	YES	YES
Product FE	-	YES
Year-Quarter FE	YES	YES
Institution-Year FE	YES	-
Market-Institution-Year FE	-	YES
Observations	309,372	297,838
R-squared	0.879	0.978

Table 11. Heterogeneous Effects of CFPB Disclosure on Racial Gaps in Interest Rates: High vs. Low Public Attention

This table presents the heterogeneous effects of CFPB disclosure on racial gaps in deposit and loan interest rates under varying levels of public attention. The estimation sample is based on branch-level data aggregated by year-quarter. In the estimation, we divide treated branches into two groups based on the increase in Google search interest in their respective states from 2014 to 2015. The first group includes branches of institutions located in states that experienced above-median increases in Google search interest from 2014 to 2015. The second group includes those in states with below-median increases. Column (1) reports results using deposit interest rates, while Column (2) reports results using combined auto loan and credit card rates. Both columns control for county-level demographic variables, including the logarithm of total population and the growth rate of per capita income, along with branch and year-quarter fixed effects. Column (1) also controls for institution-year fixed effects, while Column (2) incorporates product and market-institution-year fixed effects. All interaction terms in the triple-difference specification are included, and only the two key interaction terms are shown in the table. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
VARIABLES	Deposit Rate	Loan Rate
HighAttenion×*Post*×*Minority*	0.066**	-0.163**
	(0.026)	(0.064)
LowAttenion×*Post*×*Minority*	0.037*	-0.091
	(0.019)	(0.081)
County Characteristics	YES	YES
Branch FE	YES	YES
Product FE	-	YES
Year-Quarter FE	YES	YES
Institution-Year FE	YES	-
Market-Institution-Year FE	-	YES
Observations	309,372	297,838
R-squared	0.879	0.978

Table 12. Effects of CFPB Disclosure on Bank Account Ownership Across Different Racial Households

This table presents the effects of CFPB disclosure on bank account ownership across different racial households, focusing on low-income households, defined as those with income above the federal poverty line but below twice the federal poverty line. The dependent variable is a binary indicator of whether a household owns a bank account. Column (1) reports results for minority households, while Column (2) reports results for white households. *DiscCompl* is a binary variable that equals one if the ratio of discriminatory complaints to population in a county exceeds the median in 2015, and zero otherwise. The interaction term, $DiscCompl \times Post$, captures the differential effect of the policy based on the level of complaints within the community. All columns control for per capita income and the logarithm of total population at the county level. State fixed effects are included, along with the joint fixed effects of year and similar household characteristics. The *SimilarHousehold* fixed effects encompass the interaction of income level, education level, household size, and employment category. Standard errors are double clustered at the county and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
	Account Ownership	
VARIABLES	Minority Households	White Households
$DiscCompl \times Post$	0.043**	0.019*
	(0.012)	(0.008)
County Characteristics	YES	YES
State FE	YES	YES
Year-SimilarHousehold FE	YES	YES
Observations	1,791	4,615
R-squared	0.288	0.265

Table 13. Effects of CFPB Disclosure on Auto Ownership Across Different Racial Households

This table presents the effects of CFPB disclosure on auto ownership across different racial households, focusing on low-income households, defined as those with income above the federal poverty line but below twice the federal poverty line. The dependent variable is a binary indicator of whether a household owns a vehicle. Column (1) reports results for minority households, while Column (2) reports results for white households. *DiscCompl* is a binary variable that equals one if the ratio of discriminatory complaints to population in a county exceeds the median in 2015, and zero otherwise. The interaction term, *DiscCompl* × *Post*, captures the differential effect of the policy based on the level of complaints within the community. All columns control for per capita income and the logarithm of total population at the county level. State fixed effects are included, along with the joint fixed effects of year and similar household characteristics. The *SimilarHousehold* fixed effects encompass the interaction of income level, education level, household size, and employment category. Standard errors are double clustered at the county and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
	Auto Ownership	
VARIABLES	Minority Households	White Households
DiscCompl × *Post*	0.011***	-0.000
	(0.001)	(0.001)
County Characteristics	YES	YES
State FE	YES	YES
Year-SimilarHousehold FE	YES	YES
Observations	201,600	262,354
R-squared	0.337	0.236

Table 14. Effects of CFPB Disclosure on Credit Card Approval Confidence Across Different Racial Households

This table presents the effects of CFPB disclosure on credit card approval confidence across different racial households, focusing on low-income households, defined as those with income above the federal poverty line but below twice the federal poverty line. The dependent variable is a three-level categorical indicator of confidence in credit card approval, with values ranging from 1 to 3, where 1 represents not confident, 2 represents somewhat confident, and 3 represents very confident. Column (1) reports results for minority households, while Column (2) reports results for white households. *DiscCompl* is a binary variable that equals one if the ratio of discriminatory complaints to population in a state exceeds the median in 2015, and zero otherwise. The interaction term, $DiscCompl \times Post$, captures the differential effect of the policy based on the level of complaints within the state. All columns control for per capita income and the logarithm of total population at the state level. State fixed effects are included, along with the joint fixed effects of year and similar household characteristics. The *SimilarHousehold* fixed effects encompass the interaction of income level, education level, household size, and employment category. Standard errors are double clustered at the state and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
	Credit Card Approval Confidence	
VARIABLES	Minority Household	White Household
$DiscCompl \times Post$	0.286***	-0.072**
	(0.076)	(0.027)
State Characteristics	YES	YES
State FE	YES	YES
Year-SimilarHousehold FE	YES	YES
Observations	2,352	8,960
R-squared	0.228	0.114

Internet Appendix

Content

Appendix A. Dataset Details

Figure A1. Trend in the Number of Complaints Across Different Product Categories

Figure A2. Racial Differences in Interest Rates Before Disclosure

Figure A3. An Illustration of the Triple-difference Model

Table A1. Discriminatory Complaints Examples in Savings and Lending Markets

Table A2. Summary Statistics: Deposit Interest Rates of All Mainstream Deposit Products

Table A3. Sample Composition in Interest Rates

Appendix B. The Effects on Resolution Outcomes

Table A4. Effects of CFPB Disclosure on Complaints' Resolution Outcomes

Figure A4. Event Study Estimates of the Effects of CFPB Disclosure on Complaints' Resolution Outcomes

Appendix C. Robustness Checks for the Effects on Financial Services

Figure A5. Event Study Estimates of the Effects of CFPB Disclosure on Interest Rates

Figure A6. Effects of CFPB Disclosure on Racial Gaps in Deposit Interest Rate Across Asset Size Caps

Table A5. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Alternative Quarterly Aggregation

Table A6. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Minority Ratio

Table A7. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Different Races

Table A8. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Alternative Cluster Level

Table A9. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Low Income Communities

Table A10. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Branch Ownership Change

Table A11. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Difference-in-Discontinuities Model

Table A12. Effects of the 2013 CFPB Database Launch on Racial Gaps in Deposit Interest Rates

Appendix D. AI-Powered Identification of Discrimination in Complaint Narratives

Appendix E. The Effects on Asian Hate During the COVID-19 Period

Table A13. Effects of CFPB Disclosure on Racial Gaps for Asians During the COVID-19 Period

Appendix F. Details for Online Ranking of Racial Gaps in Financial Services

Figure A7. Example of Online Ranking of Racial Gaps in Financial Services

Appendix A Dataset Details

Figure A1. Trend in the Number of Complaints Across Different Product Categories

This figure illustrates the trends in the number of complaints across five common product categories from 2013 to 2022. These categories include savings, auto loans, credit card loans, mortgage loans, and student loans, which together account for the majority of complaints received by the CFPB. Complaints not falling into these five categories are grouped as "other". Specifically, complaints related to savings are derived from the following classifications in the CFPB complaints database: Checking or savings account, Bank account or service, Virtual currency or money service, and Money transfer. Complaints concerning auto loans are identified from the following categories: Debt collection, Vehicle loan or lease, Consumer loan, Payday loan, Title loan, and Personal loan. Credit card complaints are compiled from the following CFPB categories: Credit reporting, Credit repair service, Debt collection, Credit card or prepaid card, Other financial services, and Debt or credit management. The vertical axis represents the logarithmically transformed number of complaints, while the horizontal axis corresponds to time in months, with year labels provided. The three main categories of complaints, which are the focus of this study, are highlighted using bold lines.

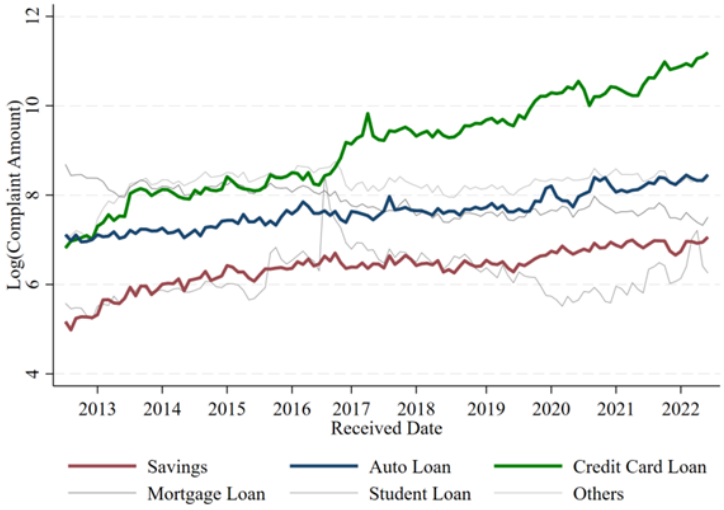
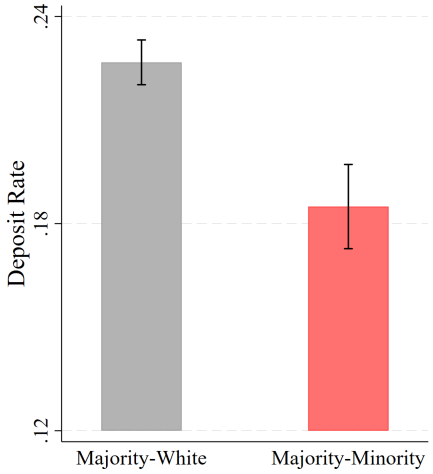
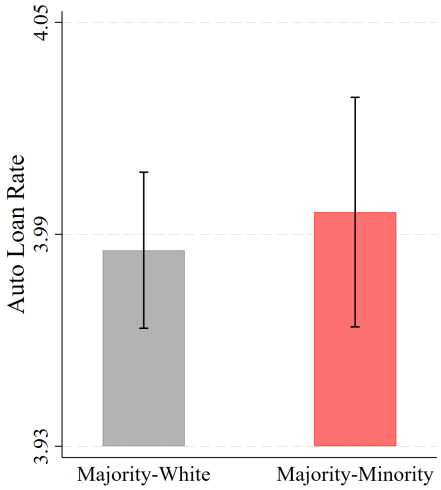


Figure A2. Racial Differences in Interest Rates Before Disclosure

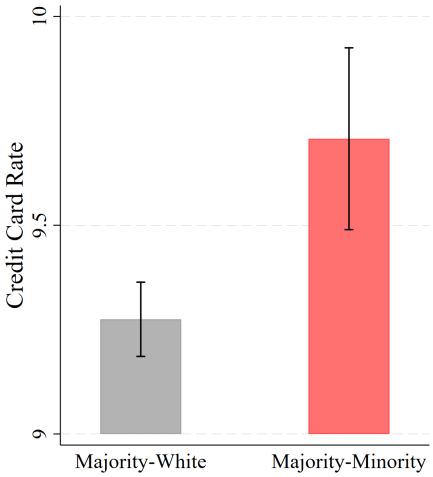
This figure illustrates the differences in interest rates across communities during the pre-disclosure period in both the savings and lending markets. Panels (a), (b), and (c) display the racial gap in deposit rates, auto loan rates, and credit card rates, respectively. For each market segment, we include rates from institutions that operate branches in both minority and white communities. To account for the volume of financial transactions, we apply weights: deposit amounts for deposit rates, auto loan balances for auto loan rates, and credit card loan balances for credit card rates. The red bar represents the average interest rates observed in majority-minority areas, while the gray bar corresponds to those in majority-white areas. The black lines indicate the 90% confidence intervals.



(a) Deposit Rate



(b) Auto Loan Rate



(c) Credit Card Rate

Figure A3. An Illustration of the Triple-difference Model

This figure illustrates our triple-difference identification strategy using a straightforward example derived from real sample observations. It shows how the unit of analysis, branches, is classified along two relevant dimensions for the analysis. First, branches are classified by the regulatory status of their institutions: CFPB-supervised institutions (treatment group) versus non-supervised institutions (control group). Second, branches are categorized by their geographic locations: those operating in minority communities versus those in predominantly white communities. Our triple-difference model captures how racial gaps in financial services pricing (e.g., interest rates) evolve differently for treated versus control institutions following the implementation of the CFPB disclosure policy. To provide an intuitive understanding, we present an example using two counties in Pennsylvania. We consider two institutions, KeyBank (a CFPB-supervised institution) and WSFS Bank (a non-supervised institution), both of which operate branches in Philadelphia and Montgomery counties. Based on the minority population ratio, Philadelphia is classified as a minority community, while Montgomery is classified as a white-majority community. One key intuition behind our triple-difference estimation is to examine how the difference in pricing between KeyBank branches in Philadelphia and Montgomery changes after the disclosure policy, compared to how the difference in pricing between WSFS branches in Philadelphia and Montgomery changes over the same period. The triple-difference coefficient captures the difference between these two changes.

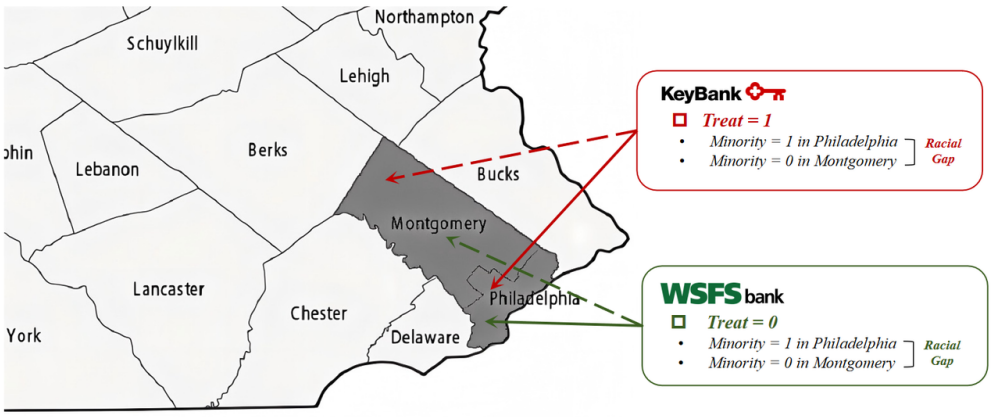


Table A1. Discriminatory Complaints Examples in Savings and Lending Markets

This table presents three examples of complaints with racially discriminatory implications from the CFPB complaints database related to the savings and lending markets. The "Consumer complaint narrative" row in the table highlights in bold the parts of the complaint narratives that suggest racial discrimination.

Date received	Details
Panel A. Savings Market	
Date received	12/22/22
Product	Checking or savings account
Subproduct	Checking account
Issue	Opening an account
Consumer complaint narrative	On XX/XX/2022 I, XXXX XXXX, went into Amegy Bank located at XXXX XXXX XXXX XXXX, XXXXXXXX XXXX XXXX to open a business account. I was assisted by XXXX XXXX who took my documents and a grant check that was awarded to my company XXXX XXXX XXXX for the work it does for the XXXX community through the Human Rights Campaign and Showtime. XXXX took all my documents and stated that she needed approval to open an account. So I said okay. XXXX walked to the back and returned shortly stating that the account could not be opened because the Certificate of Formation documents were new and it would be three months before I could open the account which I found odd. So I left and called Amegy Bank and a representative searched and found the banking rules that said no such thing and called over to the bank while keeping me on hold. After several minutes the representative returns and explains how sorry she is for the inconvenience and hangs up.

Continued on next page

Table A1 – *Continued from previous page*

	About twenty to thirty minutes I get a phone call from XXXX who states: I'm oversharing this but there has been a lot of business banking fraud and I was told to say that insinuating that I was there to commit fraud then tells me if I can produce documentation of where the large sum grant check came from she would gladly open the account which makes no sense because she just told me my documents were new and the reason. So at this point, I knew it had nothing to do with my documents. **It was about me, a hardworking African-American business-woman coming into the bank with a huge check to deposit for my business that I and my business was awarded and earned and immediately being racially discriminated against.** I broke down crying, disappointed and disgusted at her behavior, and reached out to XXXX, an XXXX associate who took my complaint. Currently waiting for a follow-up call.
Company	ZIONS BANCORPORATION
State	TX
Submitted via	Web
Company response to consumer	Closed with explanation
Panel B. Lending Market - Auto Loan	
Date received	07/15/15
Product	Consumer Loan
Subproduct	Vehicle loan
Issue	Shopping for a loan or lease

Continued on next page

Table A1 – *Continued from previous page*

Consumer complaint narrative	I purchased a Honda Accord in 2012 at the Honda of XXXX in Ohio. I was sent an advertisement for a XXXX percent interest rate and thought I'd take advantage of the opportunity. Once I arrived at the dealership and consulted with XXXX XXXX, she informed me that not only did I not qualify for the XXXX percent interest rate but I also had the option of only XXXX car at a higher interest rate, around five percent. I thought this was odd because my credit score was XXXX at the time but with her pushy tactics, I felt forced into the deal. She told me that I did not qualify for the XXXX percent rate but there was another program I qualified for that included higher rates. Last year, I went to another dealership, Honda of XXXX in Ohio, to trade my car in and I was told about restrictions against a trade-in deal. I found out that the Honda of XXXX dealership overcharged me for the car and I was responsible for the excess charges. The salesman at the Honda of XXXX also informed me that Honda of XXXX was known for schemes such as the one I am now entangled in. **With the recent lawsuit filed against Honda concerning discrimination, my situation aligns with the trouble I have been and still am experiencing. It was as if Honda drew me in just to take advantage of me. I am a middle-aged black man.**
Company	AMERICAN HONDA FINANCE CORP
State	OH
Submitted via	Web
Company response to consumer	Closed with explanation
Panel C. Lending Market - Credit Card Loan	
Date received	6/6/22
Product	Credit card or prepaid card
Subproduct	General-purpose credit card or charge card
Issue	Fees or interest

Continued on next page

Table A1 – *Continued from previous page*

Consumer complaint narrative	On XX/XX/2022 I received an increase by Capital One without requesting it. The problem I have is I have an excellent credit score and Capital One raise my APR to a high 27.24%. **I believe this is a discriminatory practice based on my race.** My increase was based on my credit score and this high apr doesn't make since. Thank you
Company	CAPITAL ONE FINANCIAL CORPORATION
State	NY
Submitted via	Web
Company response to consumer	Closed with explanation

Table A2. Summary Statistics: Deposit Interest Rates of All Mainstream Deposit Products

This table presents summary statistics for the interest rates of mainstream deposit products on a quarterly basis from 2013 to 2022. These products include four types of CDs: 12MCD10K, 24MCD10K, 36MCD10K, and 12MCD100K, along with four MM accounts: MM25K, MM50K, MM100K, and MM250K.

	(1)	(2)	(3)	(4)	(5)	(6)
	N	Mean	Q1	Median	Q3	Std. Dev
Savings Market - Deposit Interest Rate (%)						
12MCD10K	310,883	0.52	0.25	0.40	0.60	0.45
24MCD10K	299,002	0.72	0.40	0.60	0.90	0.51
36MCD10K	282,335	0.89	0.50	0.75	1.10	0.53
12MCD100K	293,060	0.54	0.25	0.40	0.65	0.46
MM25K	282,103	0.22	0.10	0.15	0.25	0.20
MM50K	233,038	0.24	0.10	0.20	0.30	0.22
MM100K	223,580	0.28	0.13	0.20	0.35	0.25
MM250K	211,647	0.29	0.15	0.20	0.35	0.26

Table A3. Sample Composition in Interest Rates

This table presents the summary statistics for rate-setting branches belonging to CFPB-supervised and non-supervised institutions in our data sample from 2013 to 2022. Panels A, B, and C highlight the branch, county, and institution-level composition for deposits, auto loans, and credit cards sourced from RateWatch. Within the savings market, our primary focus is on the interest rate for the product labeled "12MCD10K." In the lending market, we focus on interest rates for auto loans and credit cards. For auto loans, we use the rates for short-term (36 months) and long-term (72 months) loans. For credit cards, we examine the standard credit card rates. Column (1) illustrates the sample composition in CFPB-supervised institutions (excluding large institutions), while Column (2) illustrates the composition in non-CFPB-supervised institutions. The variables in our analysis include the number of institutions, the number of counties, the number of rate-setting branches, the branch-per-institution ratio, and the rate variation per branch. The branch-per-institution ratio represents the average number of branches an institution operates within a county. The rate variation per branch measures the frequency of interest rate adjustments for a specific product during the sample period.

	(1)	(2)
	Supervised Institutions	Non-Supervised Institutions
Panel A. Deposits		
Num Institutions	127	9,176
Num Counties	310	2,498
Num Rate-Setting Branches	537	11,287
Within-County Branches Per Institution	1.1	1.03
Rates Variation Per Branch	6.86	8.65
Panel B. Auto Loans		
Num Institutions	62	5,190
Num Counties	156	1,808
Num Rate-Setting Branches	197	5,753
Within-County Branches Per Institution	1.05	1.02
Rates Variation Per Branch	12.61	12.02
Panel C. Credit Cards		
Num Institutions	49	2,229
Num Counties	81	948
Num Rate-Setting Branches	93	2,386
Within-County Branches Per Institution	1.01	1.01
Rates Variation Per Branch	4.54	2.24

Appendix B The Effects on Resolution Outcomes

This section examines how the CFPB disclosure policy affects the distribution of resolution outcomes in consumer complaints. The CFPB's complaint database has demonstrated effectiveness in regulating the financial industry (Li (2023b); Dou and Roh (2024)). Under this premise, we investigate whether the CFPB's public disclosure of complaint narratives leads to further changes in the service quality of supervised financial institutions.

Financial institutions do take the CFPB-disclosed complaint narratives seriously, which serves as the basis for our main analysis. After the CFPB releases these narratives, their contents are likely to attract attention from various social entities, including consumers, media, investors, and competing financial institutions. The possibility of negative reactions from these groups motivates financial institutions to improve their service quality more proactively compared to the period before narrative disclosure.

By analyzing changes in complaint resolution outcomes, we provide empirical evidence that financial institutions emphasize handling complaints with narratives more intensively after the public disclosure. This finding serves as a foundation for our analysis of how the disclosure policy influences racial disparities in financial products.

We employ a difference-in-difference model using the CFPB complaints database to examine changes in resolution outcomes after the public disclosure of complaint narratives. We select March 19, 2015, to December 31, 2015, as the analysis period. Starting on March 19, 2015, consumers could choose to make their complaint narratives public when submitting complaints to the CFPB. However, the CFPB did not disclose these narratives to the public until June 25, 2015, providing supervised financial institutions some buffer time.

Based on this timeline, our pre-disclosure period spans from March 19 to June 25, 2015, during which consumers could opt to make their complaint narratives public when submitting complaints, and these narratives were not yet disclosed to the public. This setting helps mitigate self-selection bias, as we believe that consumers' behavior in choosing

whether to disclose complaint narratives does not exhibit systematic differences after the CFPB introduced the narrative disclosure option. Our sample period ends on December 31, 2015 to balance the data structure before and after disclosure, particularly given that the pre-disclosure period spans only three months. The final dataset comprises 27,993 observations from the savings and lending markets. We specify our regression model as follows:

$$\begin{aligned} Y_{i,t} =& \alpha + \beta_1 Treat_i \times Post_t \\ &+ X\theta + \mu_{Institution \times YearMonth} \\ &+ \mu_{Zip \times YearMonth} + \mu_{Market \times YearMonth} + \epsilon_{i,t} \end{aligned}$$

Here, we classify complaints into treatment and control groups based on whether this complaint's narratives are disclosed to the public. $Treat_i$ equals 1 for complaints with publicly available narratives and 0 otherwise. $Post_t$ indicates the period after the CFPB began providing public access to complaint narratives, taking the value of 1 for dates on or after June 25, 2015, and 0 otherwise.

For the dependent variable $Y_{i,t}$, we use three distinct measures of complaint resolution outcomes. First, we examine whether consumers dispute the resolution provided by the financial institution. Second, we examine whether the institution's response is timely.[28] Third, we focus on whether complaints are resolved with monetary relief.[29] These three outcome variables are all binary indicators. The coefficient of interest in our regression model, β_1, captures the change in resolution outcomes for complaints with narratives relative to those without narratives after the disclosure policy implementation. $\boldsymbol{X}$ incorporates the baseline terms from the difference-in-difference setting and county characteristics including the total population and per capita income growth rates.

[28]Timely response refers to "Whether the company provided a timely response." According to CFPB regulations, a company must respond within 15 calendar days. In special circumstances, a company can request up to 60 calendar days to provide a final response.

[29]Complaints filed to the CFPB can be resolved in the following ways: closed, closed with explanation, closed with monetary relief, closed with non-monetary relief, and untimely response. Monetary relief is a resolution outcome desired by consumers, and this type of resolution has been shown to exhibit significant racial bias (Haendler and Heimer (2025)).

Additionally, we incorporate multiple fixed effects to control for unobservable factors. We use institution-year-month fixed effects to account for institutional characteristics and their temporal variations. The zip-year-month fixed effects control for changes in local economic and political environments. The market-year-month fixed effects capture time-varying heterogeneity across savings and lending markets. We cluster standard errors at both the institution and year-month levels to address potential correlations within institutions and across time periods.

Table A4 presents our main results. The positive coefficient of $Treat \times Post$ in Column (1) indicates that the disclosure policy reduces the likelihood of consumers disputing complaint resolutions by 3.9%, equivalent to 21.3% of the sample mean. For complaint response efficiency in Column (2), the positive and significant coefficient for $Treat \times Post$ demonstrates that financial institutions handle complaints with narratives more efficiently following the policy implementation. Column (3) reveals that the disclosure policy increases the probability of complaints being resolved with monetary relief by 2.1%, corresponding to 47.1% of the sample mean. These findings confirm that public disclosure of complaint narratives significantly improves resolution outcomes by attracting institutional attention and motivating financial institutions to respond more favorably to consumer demands to protect their reputation.

The validity of difference-in-difference estimates relies on the parallel trend assumption. To verify the reliability of our results, we conduct an event study based on our regression framework. Figure A4 presents our analysis of dynamic treatment effects, with June 25, 2015, as the policy implementation date, examining treatment effects from three months before to five months after implementation.

Figure A4 panels (a), (b), and (c) display the dynamic results for the three outcome variables. The pre-disclosure coefficients do not differ significantly from zero and remain stable over time, confirming that no abnormal pre-trends exist. The improvement in resolution outcomes appears following the disclosure. Despite some fluctuations across different

outcomes, the effects persist throughout the observation period, with coefficients for the fifth month after implementation maintaining the same direction as those in the initial period.

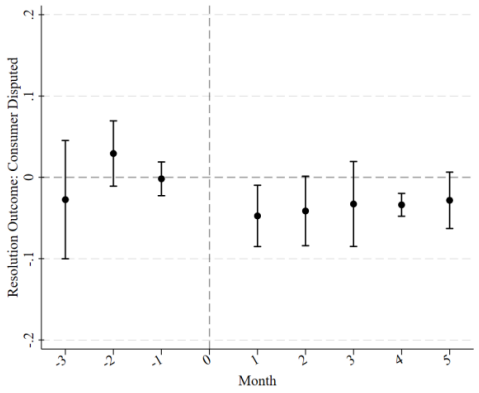
Table A4. Effects of CFPB Disclosure on Complaints' Resolution Outcomes

This table presents the effects of CFPB disclosure on complaint resolution outcomes. The estimation sample is based on complaint-level data from March 19, 2015, to December 31, 2015. This table focuses on three resolution outcomes: *Consumer Disputed*, a binary variable that equals one if the consumer disputes the resolution results; *Timely Response*, a binary variable that equals one if the institution's response is timely (within 15 days); and *Monetary Relief*, a binary variable that equals one if the complaint is resolved with monetary relief for the consumer. For the independent variables, we focus on the difference-in-difference interaction term, $Treat \times Post$, which captures the effect of disclosure on the resolution outcomes of complaints with disclosed narratives compared to those without disclosed narratives. All columns control for institution-year-month, zip-year-month, and market-year-month fixed effects. Standard errors are double clustered at the institution and year-month levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

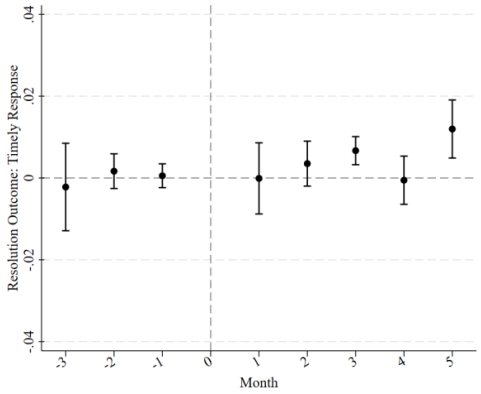
	(1)	(2)	(3)
VARIABLES	Consumer Disputed	Timely Response	Monetary Relief
Treat × *Post*	-0.039**	0.005*	0.021***
	(0.012)	(0.002)	(0.006)
Institution-Year-Month FE	YES	YES	YES
Zip-Year-Month FE	YES	YES	YES
Market-Year-Month FE	YES	YES	YES
Observations	27,993	27,993	27,993
R-squared	0.542	0.601	0.559

Figure A4. Event Study Estimates of the Effects of CFPB Disclosure on Complaints' Resolution Outcomes

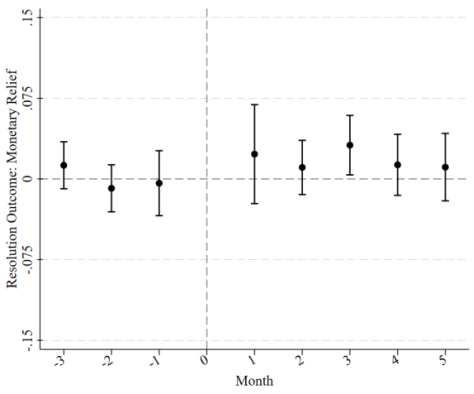
This figure illustrates the estimates of the event study examining the effects of the CFPB disclosure policy on complaint resolution outcomes. Three resolution outcomes are reported. In panel (a), *Consumer Disputed* measures whether the consumer chooses to dispute the resolution outcomes provided by the respective financial institution. In panel (b), *Timely Response* measures whether the institution's response occurs in a timely manner. In panel (c), *Monetary Relief* measures whether complaints filed with the CFPB result in monetary relief for the complainant. For estimation purposes, the month of the disclosure is treated as the baseline period. The vertical axis shows the magnitude of the coefficients for the double-interaction terms, while the horizontal axis represents relative time periods. Black points represent the coefficient estimates for each period, and the black vertical lines denote the 95% confidence intervals.



(a) Consumer Disputed



(b) Timely Response

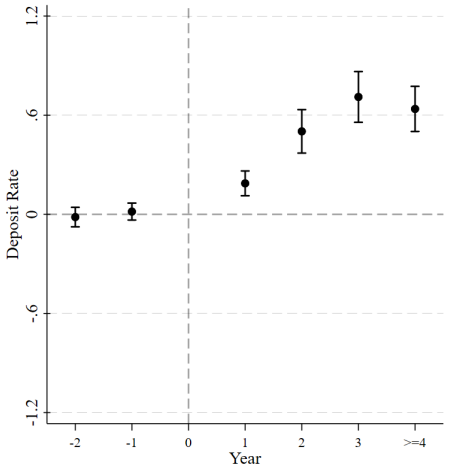


(c) Monetary Relief

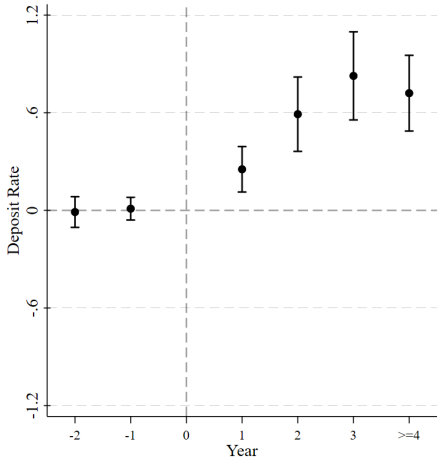
Appendix C Robustness Checks for the Effects on Financial Services

Figure A5. Event Study Estimates of the Effects of CFPB Disclosure on Interest Rates

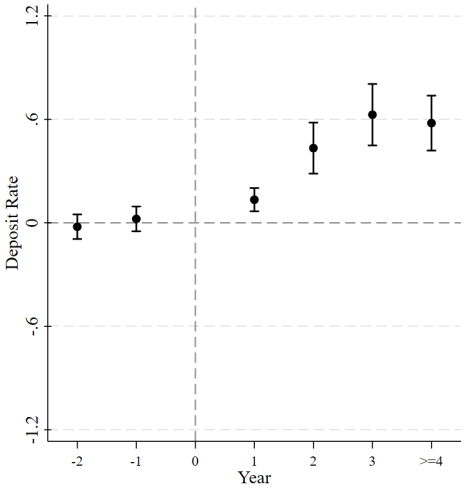
This figure illustrates the estimates of the event study examining the effects of CFPB disclosure on interest rates. In the empirical specification, the year of the disclosure is treated as the baseline period. The vertical axis shows the size of the coefficients for the interaction terms, while the horizontal axis represents relative time periods. Panel (a) presents the event study estimates for the difference-in-difference term $Treat \times Post$ based on the specification in Column (1) of Table 2. Panels (b) and (c) report the results separately for institutions with high and low volumes of narrative complaints. Black points represent the coefficient estimates for each period, and the black vertical lines denote the 95% confidence intervals.



(a) Baseline



(b) High Complaint Volume Group



(c) Low Complaint Volume Group

Figure A6. Effects of CFPB Disclosure on Racial Gaps in Deposit Interest Rate Across Asset Size Caps

This figure illustrates the effects of CFPB disclosure on racial gaps in deposit interest rates across different asset size caps. The horizontal axis represents the caps used for sample selection, with estimations performed every $20 billion from $20 billion to $500 billion. The vertical axis represents the size of the coefficients for the triple-interaction terms in the triple-difference model estimated at different cap thresholds. These coefficients are estimated based on the setting in Column (1) of Table 3. The points represent the coefficient values, and the vertical lines denote the 95% confidence intervals. The red line shows the estimated results for this paper's baseline cap, which includes institutions with total assets under $100 billion.

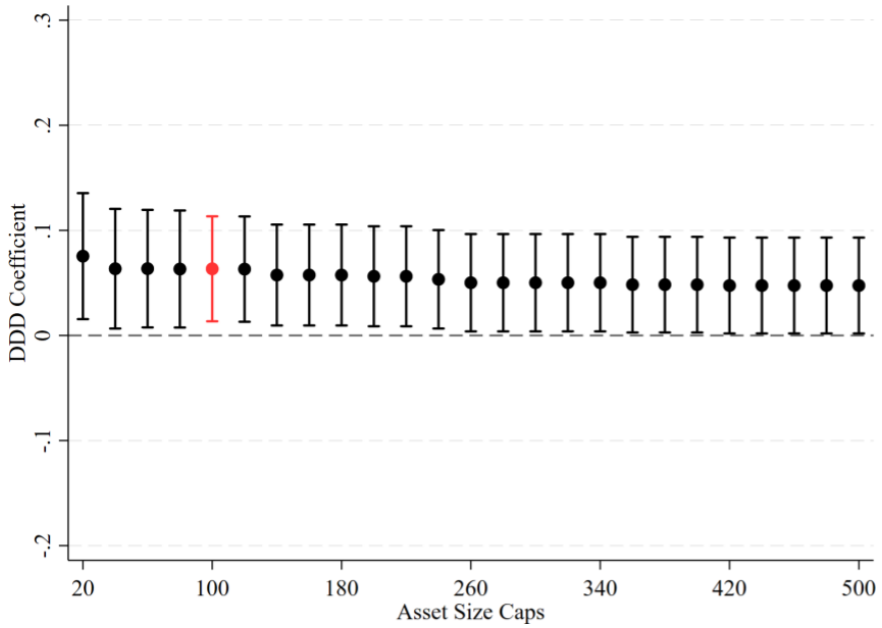


Table A5. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Alternative Quarterly Aggregation

This table presents a robustness check for the effects of CFPB disclosure on racial gaps in the savings market by varying the quarterly rate aggregation methods. Columns (1) and (2) use the average rate of a branch within a quarter, while Columns (3) and (4) use the rate spread, calculated as the last-week rate minus the Fed funds target rate, as the outcome variables. All columns control for branch and year-quarter fixed effects. Columns (1) and (3) control for county-level demographic variables and institution-year fixed effects. Columns (2) and (4) control for county-institution-year fixed effects. The main coefficient of interest is $Treat \times Post \times Minority$, which captures the effect of disclosure on racial gaps in deposit rates in minority communities compared to those in white communities. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	Deposit Rate			
VARIABLES	Mean Rate		Rate Spread	
Treat×*Post*×*Minority*	0.051*	0.025***	0.063**	0.028***
	(0.023)	(0.000)	(0.025)	(0.001)
County Characteristics	YES	-	YES	-
Branch FE	YES	YES	YES	YES
Year-Quarter FE	YES	YES	YES	YES
Institution-Year FE	YES	-	YES	-
County-Institution-Year FE	-	YES	-	YES
Observations	309,372	309,078	309,372	309,078
R-squared	0.886	0.890	0.941	0.943

Table A6. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Minority Ratio

This table presents a robustness check for the effects of CFPB disclosure on racial gaps in the savings market by varying the definition of minority communities. We replace the dummy variable $Minority$ with the continuous variable $MinorityRatio$, derived from the 2015 county-level demographic data. All columns control for branch and year-quarter fixed effects. Column (1) controls for county-level demographic variables and institution-year fixed effects, while Column (2) controls for county-institution-year fixed effects. The main coefficient of interest is $Treat \times Post \times MinorityRatio$, which captures how the effect of disclosure on racial gaps in deposit rates varies with the minority ratio. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
VARIABLES	Deposit Rate	
Treat×*Post*×*MinorityRatio*	0.096**	0.137***
	(0.036)	(0.000)
County Characteristics	YES	-
Branch FE	YES	YES
Year-Quarter FE	YES	YES
Institution-Year FE	YES	-
County-Institution-Year FE	-	YES
Observations	309,317	309,023
R-squared	0.879	0.883

Table A7. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Different Races

This table presents the effects of CFPB disclosure on racial gaps in the savings market across different racial groups. We separately analyze the differential impact of CFPB disclosure in communities with high concentrations of Black individuals and in areas with high concentrations of Hispanic and Asian individuals. Based on the detailed racial proportions in each county, in Column 1 ("Black"), we estimate the difference in the effect of complaints disclosure for counties in the upper and middle terciles of the proportion of Black individuals, relative to counties in the bottom tercile. In Column 2 ("Non-Black"), we estimate similar differences based on the proportion of Hispanic and Asian individuals. All columns control for county-level demographic variables, along with branch, year-quarter, and institution-year fixed effects. The key estimated coefficients denote the changes in deposit rates following disclosure in communities with minority ratios in the upper and middle tertiles, compared to communities in the bottom tertile. Standard errors, shown in parentheses, are clustered at the institution, county, and year levels. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
	Deposit Rate	
VARIABLES	Black	Non-Black
Treat×*Post*×*UpperTertile*	0.027***	-0.018
	(0.006)	(0.017)
Treat×*Post*×*MiddleTertile*	0.004	-0.015
	(0.013)	(0.017)
County Characteristics	YES	YES
Branch FE	YES	YES
Year-Quarter FE	YES	YES
Institution-Year FE	YES	YES
Observations	309,372	309,372
R-squared	0.879	0.879

Table A8. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Alternative Cluster Level

This table presents a robustness check for the effects of CFPB disclosure on racial gaps in the savings market by changing the clustering level of standard errors. Columns (1) and (2) examine the "12MCD10K" product, while Columns (3) and (4) include eight types of CDs and MMs. All columns include branch and year-quarter fixed effects. Columns (1) and (3) control for county-level demographic variables and institution-year fixed effects, whereas Columns (2) and (4) include county-institution-year fixed effects. The main coefficient of interest is $Treat \times Post \times Minority$, which captures the effect of disclosure on racial gaps in deposit rates in treated institutions compared to those in control institutions. Standard errors are clustered at the institution and county levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	Deposit Rate			
VARIABLES	12MCD10K		CDs and MMs	
Treat×*Post*×*Minority*	0.063***	0.028*	0.039**	0.028*
	(0.024)	(0.016)	(0.017)	(0.015)
County Characteristics	YES	-	YES	-
Branch FE	YES	YES	YES	YES
Product FE	-	-	YES	YES
Year-Quarter FE	YES	YES	YES	YES
Institution-Year FE	YES	-	YES	-
County-Institution-Year FE	-	YES	-	YES
Observations	309,372	309,078	2,135,586	2,135,579
R-squared	0.879	0.883	0.735	0.738

Table A9. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Low Income Communities

This table presents a robustness check for the effects of CFPB disclosure on racial gaps in the savings market, controlling for income. Column (1) examines the "12MCD10K" product, while Column (2) includes eight types of CDs and MMs. The variable *LowIncome* equals one for counties with below-median income in 2015, and zero otherwise. Both columns include branch, year-quarter, and institution-year fixed effects, as well as county-level demographic controls. Column (2) further controls for product fixed effects. All interaction terms in the triple-difference specification are included, with only the two key interaction terms reported in the table. The coefficient on $Treat \times Post \times Minority$ captures the effect of disclosure on racial gaps in deposit rates in minority communities compared to those in white communities. The coefficient on $Treat \times Post \times LowIncome$ identifies changes in interest rate gaps across communities with different income levels. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
	Deposit Rate	
VARIABLES	12MCD10K	CDs and MMs
Treat×*Post*×*Minority*	0.064**	0.039*
	(0.026)	(0.018)
Treat×*Post*×*LowIncome*	-0.013	-0.014
	(0.020)	(0.017)
County Characteristics	YES	YES
Branch FE	YES	YES
Product FE	-	YES
Year-Quarter FE	YES	YES
Institution-Year FE	YES	YES
Observations	309,317	2,135,292
R-squared	0.879	0.735

Table A10. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Branch Ownership Change

This table presents the sensitivity test of the effects of CFPB disclosure on racial gaps, focusing on changes in branch ownership. We exclude branch observations where ownership changed during the sample period. This exclusion applies only to branches whose parent institutions were altered, and does not include newly established branches. All columns control for branch and year-quarter fixed effects. Column (1) controls for county-level demographic variables and institution-year fixed effects, while Column (2) controls for county-institution-year fixed effects. The main coefficient of interest is $Treat \times Post \times Minority$, which captures the effect of disclosure on racial gaps in deposit rates in minority communities compared to those in white communities. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
VARIABLES	Deposit Rate	
Treat×*Post*×*Minority*	0.055**	0.031***
	(0.019)	(0.001)
County Characteristics	YES	-
Branch FE	YES	YES
Year-Quarter FE	YES	YES
Institution-Year FE	YES	-
County-Institution-Year FE	-	YES
Observations	292,962	292,695
R-squared	0.879	0.884

Table A11. Effects of CFPB Disclosure on Racial Gaps in Savings Market: Difference-in-Discontinuities Model

This table presents the effects of CFPB disclosure on racial gaps in deposit rates, based on a difference-in-discontinuities model. The sample comprises depository institutions supervised by the CFPB based on the $10 billion asset threshold. Affiliates of the treated institutions are excluded from the sample if their total assets fall below $10 billion, as they remain subject to CFPB supervision despite being below the asset threshold. Including these affiliates would violate the core assumptions of the regression discontinuity design. This approach captures the difference between the pre-disclosure and post-disclosure discontinuities at the $10 billion total assets threshold. Specifically, we estimate the following specification separately for minority and white communities:

$$\begin{aligned} DepositRate_{i,t} = {} & \alpha_i + \alpha_1(Asset_{i,t} - 10billion) + Over10_{i,t}(\beta_0 + \beta_1(Asset_{i,t} - 10billion)) \\ & + Post_t[\gamma_0 + \gamma_1(Asset_{i,t} - 10billion) + Over10_{i,t}(\delta_0 + \delta_1(Asset_{i,t} - 10billion))] \\ & + \mu_{Branch} + \epsilon_{i,t} \end{aligned}$$

$DepositRate_{i,t}$ represents the deposit interest rates of branch i at time t for 12MCD10K. $Over10_{i,t}$ indicates whether the total assets of a financial institution exceed the $10 billion threshold, based on the first quarter of 2015 data. $Post_t$ takes a value of one when t corresponds to the period after the second quarter of 2015 and zero otherwise. We include branch fixed effects α_i. The coefficient δ_0 is the diff-in-disc estimator and identifies the treatment effect of CFPB disclosure. Columns (1) and (2) present the results for minority communities, while Columns (3) and (4) focus on white communities. Columns (1) and (3) use the full sample, while Columns (2) and (4) focus on institutions with total assets ranging from $1 billion to $20 billion. Standard errors are clustered at the institution level and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	Deposit Rate			
	Minority		White	
VARIABLES	All	[1,20]	All	[1,20]
Diff-in-Disc	0.022**	0.090***	0.007	-0.009
	(0.011)	(0.032)	(0.005)	(0.015)
Branch FE	YES	YES	YES	YES
Observations	8,006	1,047	194,768	23,804
R-squared	0.434	0.468	0.415	0.413

Table A12. Effects of the 2013 CFPB Database Launch on Racial Gaps in Deposit Interest Rates

This table presents the effects of the 2013 CFPB database launch on racial gaps. Columns (1) and (3) focus on "12MCD10K," while Columns (2) and (4) include eight types of CDs and MMs. The estimation sample spans from the second quarter of 2011 (CFPB establishment) to the first quarter of 2015 (prior to the CFPB's complaint narrative disclosure). *Post2013* equals one for periods after the first quarter of 2013 and zero otherwise. The *Treat* and *Minority* variables are defined as in Table 3. All columns control for county-level demographic variables, along with branch and year-quarter fixed effects. Columns (2) and (4) include product-year fixed effects, with Column (4) additionally controlling for institution-year fixed effects. Columns (1) and (2) present results from the difference-in-difference model and report the key coefficient $Treat \times Post2013$, which measures the database's impact on deposit rates. Columns (3) and (4) use the triple-difference model and report the key coefficient $Treat \times Post2013 \times Minority$, which captures the database's effect on racial gaps in deposit rates in minority communities compared to those in white communities ($Treat \times Post2013$ absorbed by the fixed effects). Standard errors for Columns (1) and (2) are clustered at the institution level, while standard errors for Columns (3) and (4) are clustered at the institution, county, and year levels. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	DID		DDD	
VARIABLES	12MCD10K	CDs and MMs	12MCD10K	CDs and MMs
$Treat \times Post2013$	0.045***	0.041***		
	(0.011)	(0.010)		
$Treat \times Post2013 \times Minority$			-0.029	-0.023
			(0.018)	(0.029)
County Characteristics	YES	YES	YES	YES
Branch FE	YES	YES	YES	YES
Product-year FE	-	YES	-	YES
Year-Quarter FE	YES	YES	YES	YES
Institution-Year FE	-	-	-	YES
Observations	147,581	996,621	138,738	985,540
R-squared	0.844	0.418	0.939	0.839

Appendix D AI-Powered Identification of Discrimination in Complaint Narratives

Identifying discrimination patterns in consumer complaints is essential for understanding disparities in financial services, yet this issue remains underexplored. The CFPB complaint database, with its rich narrative content, offers a valuable resource for uncovering these patterns and evaluating the implications of such disparate treatment.

Prior research has made initial attempts to extract relevant text from the CFPB database. For example, Bian et al. (2024) construct a zero-shot learning model using a word list to identify fraud-related complaints in the CFPB database. Li (2023a) analyzes discrimination-related topics using a word list approach. Building on these efforts, we introduce a novel analytical framework that leverages large language models (LLMs), specifically OpenAI's advanced GPT-4o model, to detect discrimination patterns in complaint narratives. Compared to conventional methods, LLMs excel at contextual reasoning and implicit bias detection (De Kok (2025)), making them particularly suited for this task.

Our implementation follows De Kok (2025)'s best practices for LLM applications. We configure GPT-4o to analyze CFPB complaints through hierarchical prompt engineering. This methodology organizes discrimination identification into five structured components: (1) general instructions for comprehensive task understanding; (2) definition of discrimination with two key factors: customers' feelings and their treatment comparisons with others; (3) classification standards for various forms of discrimination; (4) reasoning process guidance for systematic analysis; and (5) output format specifications for consistent results.

We employ the widely-used few-shot learning approach by including two contrasting examples in the prompt. The first example presents a negative case about a bank's penny acceptance policy that involves no discrimination. The second example shows a positive case where a minority customer reports being denied a mortgage loan despite meeting all qualification requirements, while similar non-minority applicants receive approval. We present the

negative case first to establish a baseline understanding of non-discriminatory complaints. This strategy helps the model better distinguish actual discrimination from general service issues through learning from contrasting examples. It reduces the misclassification of routine service issues as discriminatory incidents, recognizing that the majority of customer grievances stem from operational and service quality concerns rather than discriminatory practices.

Here is the implemented prompt:

You are an AI assistant specialized in analyzing consumer complaints for the Consumer Financial Protection Bureau (CFPB). Your task is to identify discrimination-related content in complaint narratives and determine if the complainant experienced discrimination or unfair treatment.

1. General Instructions

(1) Carefully read and analyze the above narrative.

(2) Determine if this complaint contains content related to discrimination or unfair treatment.

(3) Consider a broad definition of discrimination, including any indication of unfair or unequal treatment that the complainant perceives.

2. Key Elements of Discrimination

When analyzing the complaint, pay special attention to:

(1) The complainant's feelings of discrimination or unfair treatment

(2) Any comparisons the complainant makes between their treatment and that of others

3. Forms of Discrimination

When analyzing the complaint, consider the following forms of discrimination or unfair treatment:

(1) Explicit or implicit discrimination based on protected characteristics (race and ethnicity)

(2) Consider the following forms of discrimination or unfair treatment:

- Approval discrimination: Higher likelihood of application rejections

- Interest rate discrimination: Being charged higher interest rates

- Service quality discrimination: Poorer service experience or staff attitudes

- Fee discrimination: Being charged higher or additional fees

- Any other form of unfair or unequal treatment perceived by the complainant

4. Reasoning Process

Use your reasoning skills to analyze the narrative. Consider the following questions:

(1) Does the complaint explicitly mention discrimination or unfair treatment?

(2) Are there implicit indications of discriminatory practices or unfair treatment?

(3) Does the complaint describe treatment that aligns with any of the discrimination types mentioned above?

(4) Does the complainant express feeling unfairly treated, even if not using the word "discrimination"?

(5) Is there a comparison made between the complainant's treatment and that of others, suggesting potential disparity?

5. Output Format

After your analysis, provide your output in the following JSON format:

{

"is_discrimination": "<Binary classification (0 or 1) of the complaint>",

"confidence_score": "<Confidence score (0.0-1.0)>",

"reason": "<Reason for your classification>"

}

[COMPLAINT INPUT HERE]

Here are some examples:

<examples>

<example>

<COMPLAINT_NARRATIVE>

"US Bank branch refused to accept pennies in a jar, about $10.00 dollars worth. Bank employees said no US Bank in my area accepts large amounts of pennies. I called national customer service who said each branch can have its own policy, but couldn't tell me a location that actually would accept pennies.

Apparently, the Federal Reserve doesn't have a regulation requiring banks to accept pennies. If that's the case, what value do pennies have if nobody is willing to accept them? If banks refuse pennies, and the Fed doesn't mandate banks to accept them, then obviously neither one of them wants the pennies. This makes pennies worthless, so why would I, or any consumer, want them? What if consumers refused pennies as a form of change from merchants because they have no value?

Finally, if the policy of banks and the Fed have rendered pennies worthless, why can't consumers melt them for the copper value? Pennies can't be melted because they are US currency, but shouldn't anything defined as US currency have a value of more than xxxx?

Either the Federal Reserve needs to require banks to accept pennies, or it needs to allow consumers to melt them. Thank you."

</COMPLAINT_NARRATIVE>

<ideal_output>

[{

"is_discrimination": 0,

"confidence_score": 0.85,

"reason": "While the complainant expresses frustration with bank policy regarding penny acceptance, the complaint does not indicate discriminatory treatment. The policy appears to be applied uniformly across all customers at US Bank branches in the area. The issue relates to general banking policy and currency acceptance rather than unfair treatment or discrimination against any particular individual or group. The complainant's concerns focus on the practical value and utility of pennies as currency rather than experiencing disparate treatment."

}]

</ideal_output>

</example>

<example>

<COMPLAINT_NARRATIVE>

I believe that I am being discriminated against because I disclosed my race as XXXX on Section X of the XXXX loan application. I would greatly appreciate it if this could be looked into to ensure that Bank of America didn't discriminate against me by showing that they also denied mortgage loans to people of other races, particularly XXXX people, with similar credit, income or debt-to-income ratio, savings, educational, and employment backgrounds as me.

Quick summary of my background: I have excellent credit, my credit score is over XXXX. My 2 employment gaps greater than 30 days were related to school. I have a XXXX XXXX and currently in XXXX XXXX seeking a XXXX. I work full time as a mortgage loan advisor where I earn over $45000.00 annually. I have savings of $30000.00. The house I was looking to purchase cost $180000.00.

</COMPLAINT_NARRATIVE>

<ideal_output>

[{ "is_discrimination": 1,

"confidence_score": 0.95,

"reason": "The complaint explicitly alleges racial discrimination in mortgage lending by Bank of America. The complainant directly states 'I believe that I am being discriminated against because I disclosed my race' on the loan application. They specifically request an investigation to compare their loan denial with approvals for people of other races who have similar qualifications. The complainant provides detailed evidence of their strong qualifications (excellent credit score over XXXX, stable employment with $45,000 annual income, $30,000 in savings, advanced education) to support their belief that the denial was based on

race rather than legitimate lending criteria. This represents a clear case of perceived discrimination in lending practices based on a protected characteristic (race), with the complainant making explicit comparisons to how others of different races might be treated in similar circumstances." }]

</ideal_output>

</example>

</examples>

The output uses a standardized JSON format with three key elements: (1) a binary classification indicating the presence of discrimination; (2) a confidence score ranging from zero to one for uncertainty quantification; and (3) a reasoning explanation for classification decisions.

We apply this framework to identify discrimination in complaint narratives across various financial services. Specifically, among the complaints from our target market in 2015, we identify 20,676 complaints containing narrative descriptions. Within these narrative-containing complaints, 774 are found to contain discriminatory content, accounting for 3.7%. Our analysis shows a slightly lower identification rate than the traditional keyword-based method (Li (2023a)). This suggests that LLMs achieve more precise identification by semantically excluding content irrelevant to discrimination, reflecting the application of a stricter definitional standard. According to the American Community Survey, minority individuals made up 18% of the U.S. population in 2015, including 12.7% Black Americans and 5.8% non-White Hispanics. Among minority households, approximately 17% are unbanked and 30% are underbanked. As a result, the share of minority consumers who actively engage with the formal financial system is likely below 10%. The fact that this small group's discriminatory complaints account for 3.7% of all complaints suggests concentrated exposure to discriminatory treatment. On average, this implies that many minority consumers face discrimination severe enough to trigger a formal complaint, despite significant barriers to accessing financial services.

Below, we list a few example complaints with varying discrimination classification scores:

Complaint #1450743

Narrative: "I financed a vehicle thru Ally financial entering a retail installment contract on XXXX/XXXX/XXXX. The Consumer Financial Protection Bureau and U.S Department of Justice investigate Ally's auto financing business. And Based on the investigation the government agencies claimed Allys pricing and automobile dealer compensation system resulted in minorities (to whom I am an XXXX) paying higher interest rates than XXXX customers. Ally did not admit to these allegations but agreed to enter a settlement with the government agencies in XXXX XXXX. In XXXX XXXX and XXXX XXXX Ally financial reported my account 30 days late and 60 days late to the XXXX major credit bureaus XXXX, XXXX, and XXXX. This not only hurt my credit but also financially as ally was allegedly charging me a higher interest than XXXX. So when I finally refinanced the above vehicle loan with my local credit union XXXX XXXX. I owed more on the vehicle than if Ally would have charged me at a lower interest."

Is_discrimination: Yes

Confidence_score: 0.9

Reason: The complaint narrative indicates potential discrimination related to interest rate practices by Ally Financial. The complainant references a government investigation that found Ally's pricing system resulted in minorities paying higher interest rates, and the complainant identifies as a minority. The complainant also describes financial harm due to allegedly being charged a higher interest rate than others, which aligns with interest rate discrimination. The narrative suggests a comparison between the complainant's treatment and that of non-minority customers, indicating perceived unfair treatment based on race or ethnicity.

Complaint #1324587

Narrative: "I was contacted by Halsted financial services. I asked if they could send me a copy of the paperwork that determined I hold the debt. They refused to provide me with

the paperwork as well as hung up on me. I called back XXXX 4 times after being hung up continuously. After finally speaking with someone and requesting the documents again I was told no multiple times and that I would experience wage garnishments as well as being sued in court if I did not settle the debt immediately. I again asked for the proper documentation that showed I owed the debt the representative refused to send me the paperwork. I asked to speak with their supervisor and was immediately told no that is not possible at this time. I said I will have nothing further to discuss with you until speaking with your supervisor I was hung up on. I've been called back and got the company name to file the complaint."

Is_discrimination: No

Confidence_score: 0.8

Reason: The complaint describes issues with debt collection practices, including refusal to provide documentation and threats of wage garnishment. However, there is no mention or implication of discrimination or unfair treatment based on protected characteristics or comparisons to others. The complaint focuses on procedural issues and aggressive collection tactics rather than discriminatory practices.

The first case represents clear racial discrimination in lending, where the minority borrower is systematically charged higher interest rates compared to non-minority customers, supported by regulatory investigation findings. In contrast, the second case, while showing poor customer service and aggressive collection practices, does not indicate any differential treatment based on protected characteristics.

Appendix E The Effects on Asian Hate During the COVID-19 Period

The rise of Asian hate, which began in early 2020 and persisted through 2021, originates from multiple factors including perceptions about COVID-19's source, widespread xenophobia, and increasing economic pressures. This section investigates how disclosure policies affect Asian consumers during the COVID-19 pandemic. Throughout this period, Asians experience persistent discrimination and acts of violence (Jeung et al. (2021)), which directly affect the performance of Asian professionals in finance. For instance, Agarwal et al. (2023) find that mutual funds managed by Asian-descended fund managers underperform relative to those managed by non-Asian counterparts. Similarly, Qiao et al. (2023) demonstrate that East Asian analysts produce financial forecasts with reduced boldness, greater pessimism, lower frequency of updates, and decreased timeliness during the pandemic. At the consumer level, individuals of Asian heritage may also face unfair treatment in financial markets. The CFPB's complaint disclosure system potentially alleviates some effects of Asian hate on consumers by exposing instances of discrimination. Building on the baseline framework established in this paper, we examine deposit rates using the following equation:

$$\begin{aligned} Y_{i,c,t} =& \alpha + \beta_1 Treat_i \times Post_t \times Asian_c \times Covid_t \\ &+ X\theta + \mu_{Branch} + \mu_{YearQuarter} + \mu_{Institution \times Year} + \epsilon_{i,c,t} \end{aligned}$$

Where $Y_{i,c,t}$ represents the deposit rates of branch i in county c at time t. $Treat_i$ is a binary variable that equals one if branch i belongs to an institution under CFPB supervision in the first quarter of 2015. A zero value of $Treat_i$ indicates that branch i is not subject to CFPB supervision. $Post_t$ captures the period before and after the CFPB made complaint narratives public, taking a value of one if the time is in the second quarter of 2015 or later. We classify counties where branches are located into two groups based on the Asian population ratio. If this ratio exceeds the median, the dummy variable $Asian_c$ equals one; otherwise, it

equals zero. $Covid_t$ identifies the period before and after the pandemic, equaling one if the time is in or after January 2020. $\boldsymbol{X}$ is a vector containing the remaining interaction terms from our setting and county characteristics, including population and per capita income growth rates. We also control branch, year-quarter, and institution-year fixed effects.

Most results in Table A13 indicate that the positive effect of complaint narratives disclosure on the Asian gaps in deposit rates at CFPB-supervised institutions strengthened during the COVID-19 period. For example, Column (1), which examines the widely used deposit product, 12MCD10K, demonstrates an increase of 7.8 basis points in this effect. These institutions, considering factors such as reputation maintenance in this period, offered more favorable deposit rates to Asian consumers.

Table A13. Effects of CFPB Disclosure on Racial Gaps for Asians During the COVID-19 Period

This table presents the effects of CFPB disclosure on racial gaps for Asians during the COVID-19 period in deposit interest rates. Columns (1) to (4) present the results for 12MCD10K, 12MCD10K and MM25K, CDs (four mainstream CD products), and CDs and MMs (four mainstream CD products and four mainstream MM products), respectively. All columns control for county-level demographic variables, along with branch, year-quarter, and institution-year fixed effects. Additionally, Columns (2) to (4) control for product fixed effects. Throughout the estimation, we include all interaction terms involved in this setting. The main coefficient of interest is $Treat \times Post \times Asian \times Covid$, which captures the effect of disclosure on racial gaps in deposit rates for Asian communities during the COVID-19 period. Standard errors are clustered at the institution, county, and year levels and are shown in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	Deposit Rate			
VARIABLES	12MCD10K	12MCD10K and MM25K	CDs	CDs and MMs
Treat×*Post*×*Asian*×*Covid*	0.078***	0.029***	0.061***	0.018
	(0.023)	(0.007)	(0.016)	(0.013)
Branch FE	YES	YES	YES	YES
Product FE	-	YES	YES	YES
Year-Quarter FE	YES	YES	YES	YES
Institution-Year FE	YES	YES	YES	YES
Observations	306,974	569,897	1,175,974	2,119,692
R-squared	0.879	0.714	0.848	0.735

Appendix F Details for Online Ranking of Racial Gaps in Financial Services

Our research demonstrates that disclosure policies enhance minority welfare in financial services by promoting transparency and accountability. Li (2023b) developed a platform that provides a ranking of mortgage lenders in the mortgage market. Building on our focuses in this paper, we expand this platform with a ranking system that reveals how financial institutions serve different communities in both savings and lending markets. Our latest extension broadens the platform's scope substantially, providing deeper insights into the operations of financial institutions across different communities while advancing transparency and equity in financial services.

Specifically, we introduce new functionalities that rank financial branches based on disparities in four key financial outcomes: deposit rates, maintenance fees, auto loan rates, and credit card rates. We generate these rankings by comparing branches of the same institutions in minority areas to those in white areas, controlling for branch, year-quarter, state-year, and product-year fixed effects to accurately capture the impact of racial composition in each location. Through analyzing these financial outcome disparities, we assess whether branches systematically differentiate their product offerings according to local racial demographics. The model specification is as follows.

$$\begin{aligned} Outcome_{i,z,t} =& \alpha + \beta Minority_l \times InstitutionID_i + X\theta \\ &+ \mu_{Branch} + \mu_{YearQuarter} \\ &+ \mu_{State \times Year} + \mu_{Product \times Year} + \epsilon_{i,z,t} \end{aligned}$$

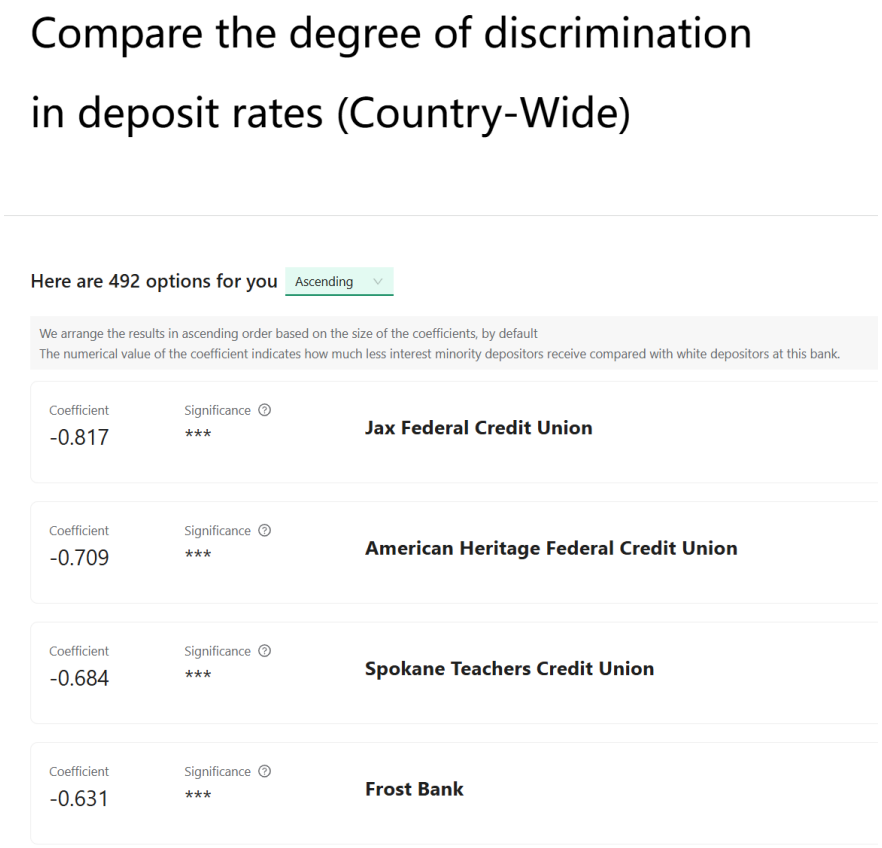
In this equation, i, z, and t represent the branch, location (ZIP code), and year-quarter, respectively. The Outcome variable captures one of four financial indicators: deposit rate, maintenance fee, auto loan rate, or credit card rate, offered by branch i in location z during year-quarter t. The key independent variable, $Minority$, equals one if the branch operates

in an area where the minority population exceeds the median value based on the 2010 census. $InstitutionID$ represents the financial institution to which branch i belongs. The interaction term, $Minority \times InstitutionID$, allows us to examine branch-level variations across different communities within the same financial institution. The coefficient β measures the racial disparity in outcomes between branches serving minority and white communities. For deposit rates, a negative β suggests lower deposit rates in minority areas, representing less favorable savings options, while a positive β indicates the opposite. For auto loan rates, credit card rates, and maintenance fees, a positive β reflects higher charges in minority areas. We rank financial institutions based on the estimated magnitude of pricing differentials faced by minority communities (value of β).

Figure A7 illustrates part of our ranking system that encompasses 492 financial institutions ordered by the magnitude of deposit rate disparities between their branches in minority and white communities. These rankings provide greater transparency into how branches price their deposit and loan products in different communities. By offering an accessible interface for the public, we hope this initiative will increase awareness of financial disparities and, in the long run, support efforts to create a more equitable financial environment.

Figure A7. Example of Online Ranking of Racial Gaps in Financial Services

This figure illustrates a screenshot extracted from the website, ranking 492 financial institutions nationwide according to racial disparities in deposit interest rates. The table contains three columns: Column (1) reports the coefficient, measuring the difference in deposit interest rates between minority and white communities for each institution. More negative values reflect greater disparities. Column (2) presents the Significance, showing the statistical significance of the coefficients. The symbols *, **, and *** correspond to significance at the 10%, 5%, and 1% levels, respectively. Column (3) lists financial institutions.



References

Agarwal, Vikas, Wei Jiang, Yuchen Luo, and Hong Zou, 2023, The real effect of sociopolitical racial/ethnic animus: Mutual fund manager performance during the AAPI hate, Working paper.

Bian, B., M. Pagel, and H. Tang, 2024, Consumer surveillance and financial fraud, Working paper.

De Kok, T., 2025, ChatGPT for textual analysis? how to use generative LLMs in accounting research, *Management Science, Forthcoming*.

Dou, Yiwei, and Yongoh Roh, 2024, Public disclosure and consumer financial protection, *Journal of Financial and Quantitative Analysis* 59, 2164–2198.

Haendler, Charlotte, and Rawley Heimer, 2025, The hidden costs of financial services: Consumer complaints and financial restitution, Working paper.

Jeung, Russell, Aggie Yellow Horse, Tara Popovic, and Richard Lim, 2021, Stop AAPI hate national report, *Stop AAPI hate* 44, 19–26.

Li, Xiang, 2023a, Bank competition and entrepreneurial gaps: Evidence from bank deregulation, Working paper.

Li, Xiang, 2023b, Does the disclosure of consumer complaints reduce racial disparities in the mortgage lending market?, Working paper.

Qiao, Yankuo, Qinzheng Xu, and Tengfei Zhang, 2023, COVID-19 pandemic, hate crimes, and analyst forecast quality, Working paper.