

Banks' Commitment to Social Responsibility in Lending Amid Reduced Enforcement of Fair Lending Laws

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Fair lending laws require banks to provide credit to underserved and low-income borrowers without discriminating based on factors unrelated to creditworthiness, such as race. Lending institutions have incentive to optimally manage their risk while maximizing profitability, which may compromise adherence to fair lending laws. Because racial diversity and economic class bear a significant correlation, it is difficult to disentangle discrimination in lending from creditworthiness of borrowers. Prior studies have argued that racial discrimination in lending occurs, with disputing studies arguing it is the creditworthiness of the applicants that is being captured. We use a shock to enforcement of fair housing laws, the 2017 change in US political leadership, as a setting to isolate the deterrent effect of fair-lending enforcement. The change in leadership effectively disbanded the Consumer Financial Protection Bureau (CFPB), the agency to which all eleven bank regulators report fair lending violations. Concurrently, the appointment of a new Attorney General shifted the Department of Justice's (DOJ) agenda and resulted in a 99% decrease in DOJ settlements related to fair housing violations. We find that when enforcement is relaxed, banks on average charge significantly higher spreads to Black and Hispanic borrowers and in low-moderate income communities (LMI), despite no corresponding overall change in creditworthiness of these demographics. We document that banks reprimanded in the past revert to disparate lending, that it varies based on bank size, and that it is not associated with increased ESG disclosure.

Keywords: Banks, Corporate social responsibility (CSR), Fair lending, Credit access, enforcement, Environmental social governance (ESG)

JEL Classifications: D18, G21, G28, G51, M14, R31

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1 Introduction

Fair lending laws were created in the late 1960s to create a legal obligation for banks to provide home mortgage access to underserved and low-income communities without discriminating against borrowers based on factors unrelated to creditworthiness.¹ However, adherence to fair lending laws has varied across time and among lending officers, as evidenced by predatory lending and unfair mortgage underwriting practices, which contributed significantly to the financial crisis. Following the financial crisis, in an attempt to rid mortgage lending of discrimination, leaders increased enforcement of fair lending laws (Rugh and Massey [2010]). Discrimination in lending includes both refusing to make a loan and imposing different terms or conditions on a loan, such as different interest rates, points, or fees (US Department of Housing and Urban Development [2022]). Importantly, bank policies that are known to have a disparate impact on borrowers, such as compensation tied to discretionary mortgage price setting, are illegal regardless of individual intent (Ropiequet [2012]). Despite potential penalties, some banks still find it profitable to implement incentive-based compensation around lending rates.

It is not clear to what extent lending discrimination exists. The Home Mortgage Disclosure Act of 1975 (HMDA) requires that banks disclose loan-level data, including demographic information on borrowers. However, the credit scores of the borrowers remain confidential. Prior literature has examined HMDA data, with mixed results on whether banks violate fair lending laws through disparate lending to low-income and minority borrowers. Early studies show evidence of such disparate lending, but later studies contend that controls for borrower characteristics *related*

¹ These laws include the Community Reinvestment Act of 1977 (CRA), the Equal Credit Opportunity Act of 1968 (ECOA), and the Fair Housing Act of 1974 (FHA). The CRA addresses the lack of lending in low and moderate-income (LMI) communities by encouraging banks to meet the credit needs of individuals in poor areas. The ECOA and FHA address discrimination in mortgage lending based on race, color, religion, sex, disability, family status, or national origin.

to creditworthiness eliminate the earlier findings (Bhutta and Canner [2013], Chu [2019], Begley and Purnanandam [2020], Dillbary and Edwards [2019], Gurin et al. [2016], Delis and Papadopoulos [2019]). Butler et al. [2021] examine racial discrimination in auto loans, finding lower loan approval rates for Black and Hispanic applicants, even when controlling for creditworthiness. Because racial diversity is correlated with economic class, and because we cannot observe credit scores of borrowers, it is difficult to disentangle creditworthiness from discrimination (Bhutta, Hizmo and Ringo [2022]). However, bank regulators do have access to credit score information and are required to refer all systematic violations to the DOJ, which independently determines if the violations merit a lawsuit (15 U.S. Code §1691e(g)). Variation in enforcement may be a factor in the results of previous studies, given that the timeframe of the studies varies and a contributing factor to the mixed results. We contribute to this literature by examining the outcomes documented in HMDA data before and after a shock to the enforcement of fair lending laws to better isolate discriminatory behavior.

One way for banks to discriminate is by charging higher interest rates to borrowers for reasons unrelated to credit risk, which increases profitability without increasing risk. Bank managers and loan officers use discretion to exert significant influence over interest rate spreads (Bushman, Gao, et al. [2021], Herpfer [2021], Berg [2015]), which leads to price dispersion in the US mortgage market (Butta and Hizmo 2020). However, banks face regulatory expectations for risk management, constraining the loan officer's ability to issue riskier loans in order to charge higher interest rates (Gopalan [2022], Colonnello, Koetter and Wagner [2022], Clinch and Magliolo [1993]). Despite the regulatory oversight, performance-based compensation for bank executives and loan officers incentivizes raising interest rate spreads on loans to achieve higher profitability (Blackwell, Brickley and Weisback [1994], Clinch and Magliolo [1993], Behr et al.

[2020], Bushman, Davidson, et al. [2018]). In addition, career concerns and personality traits affect loan officer behavior and can distort the assessment of credit risk, even among professionals with many years of experience (Cole, Kanz and Klapper [2014] (Konstantinos and Gee 2013) (Berg 2015)). Without enforcement of fair lending laws, if loan officer discretion is left unchecked by banks and disparately affects disadvantaged groups, then loan officers can set higher interest rates to minority groups without increasing risk in the portfolio. If borrowers are unable or unwilling to compare prices across banks, or if borrowers are not aware of their options, they would accept the higher loan rates, creating a systematic disparity.

While fair housing laws have remained largely unchanged, enforcement has varied over time with changes in political leadership. All systemic fair lending cases have to be referred to the Department of Justice (DOJ), which is the largest enforcer of fair lending laws, and most of the variation in enforcement from the DOJ depends on the president in office and the attorney general he appoints.² For example, in President George W. Bush's second term, DOJ fair-lending settlements totaled \$13 million, compared to President Barack Obama's per-term average of \$556 million and President Donald Trump's \$4.7 million (Gore [2017]). Figure 1 shows federal enforcement statistics by year. In this paper, we focus on the over-99% drop in enforcement between the Obama and Trump presidencies. This drop in enforcement was due to changes in presidential agenda, which included effectively disbanding the CFPB. We exploit this shock in enforcement to examine in which cases banks begin using improper discretion in interest rates when the constraint of enforced fair lending laws is relaxed.

² Prior literature has shown politicians impact bank behavior due to policy choices (Yue, Zhang and Zhong 2023).

We use the Home Mortgage Disclosure Act (HMDA) loan-level data to investigate how banks responded to the decline in enforcement of fair lending laws (low-enforcement period). Using a difference-in-differences design, we compare interest rate spreads before and after the presidential change in 2017, which we will call high (before) and low (after) enforcement, for both LMI areas and Black and Hispanic borrowers. During the period of high enforcement, banks have greater incentive to avoid behavior that could reasonably be deemed discriminatory by regulators. Barring any systematic changes in average credit risk for Black and Hispanic borrowers between periods of high enforcement and periods of low enforcement, an increase in interest rates following a drop in enforcement would represent discriminatory pricing behavior given the incentive to avoid discrimination no longer exists. If there were no change in rates charged to Black and Hispanic borrowers, all else equal, between the period of high enforcement and the period of low enforcement, we could reasonably conclude that banks were not discriminating in either period.

We find that while approval rates do not change during the low-enforcement period, loan spreads in the low-enforcement period increase significantly for Black and Hispanic and LMI borrowers compared to loan spreads for non-Black or Hispanic and non-LMI borrowers relative to the loan spreads for these groups in the high-enforcement period. Additionally, we find no change in acceptance rates for Black and Hispanic borrowers with the decline in enforcement, which suggests banks continued to lend to underprivileged borrowers but at higher interest rates. Because the misbehavior discovered in the high-enforcement period was largely related to interest rates and not to acceptance rates (see e.g., appendix C), it is not surprising that the change we observe from the high to low enforcement is manifested in the interest rate spread. We find evidence of this on average for the entire sample of loans, for Black and Hispanic borrowers within LMI areas, and for borrowers within the poorest LMI areas.

To determine which banks engage in unfair lending practices during the period of low enforcement, we conduct cross-sectional analysis. First, we find that after the drastic reduction in enforcement, banks that had been fined by the DOJ or the CFPB during the period of high enforcement increased interest rates significantly more for both Black and Hispanic borrowers and borrowers in LMI areas in the low-enforcement period than the banks that were not charged during the high-enforcement period. This suggests that banks reprimanded during the period of enhanced enforcement reverted to their disparate lending practices in the absence of enforcement, despite the commitments they made in their enforcement settlements. Next, we compare lending behavior based on bank size. Because the CFPB has supervisory authority over banks with assets over \$10 billion (Consumer Financial Protection Bureau [2022]), we split the sample between banks above and below \$10 billion in assets and find that higher loan spreads in the low-enforcement period for Black and Hispanic borrowers and borrowers in LMI areas relative to the high-enforcement period is concentrated in banks with greater than \$10 billion in assets.

Banks typically are resistant to fair lending laws, partially due to the associated regulatory reporting and enforcement. However, a growing movement for businesses to demonstrate corporate social responsibility (Stobierski [2021]) has led banks to disclose their stance on fair housing and disparate lending based on race (see appendix B for an example of such disclosures)³. If these disclosures are truthful, banks have made real efforts to curb disparate lending. Because these disclosures are not usually specific commitments, it is also possible they have little real effect on lending. To test if this public commitment to social responsibility affects bank lending behavior, we examine if a higher public commitment to CSR has a moderating effect on the

³ An estimated 90% of companies on the S&P 500 index published a CSR report in 2019, compared to just 20% in 2011 (Stobierski [2021]).

increase in rates for disadvantaged borrowers. We use the Environmental, Social, and Governance (ESG) ratings from Thomson/Refinitiv and find there is no association between ESG scores and the increase in interest rates. This suggests that, on average, banks do not react differently to the reduction of fair lending enforcement if they disclose a greater commitment to social responsibility.

This study is important because it speaks to banks' use of discretion when constraints are set but not enforced, which should be informative to bank regulators, borrowers, and politicians who suggest fair lending enforcement is no longer necessary.

2 Background and Hypothesis Development

2.1 Institutional Background

In response to the financial crisis caused in part by unfair mortgage lending to low-income borrowers, US leadership began strictly enforcing fair housing laws (Rugh and Massey [2010]). Predatory lending and reverse-redlining, the illegal practice of extending credit on unfair terms in a particular community on a discriminatory basis (e.g., the race or ethnicity of its residents), were common before the financial crisis, particularly in low-income areas (Ropiequet [2012]). In many cases, banks used discretion in the underwriting process to charge higher interest rates to borrowers from certain demographic groups (See appendix C for examples). The high rates and unfair terms extended to low-income borrowers increased the likelihood of default, which significantly contributed to the financial crisis (Rugh and Massey [2010]). In addition to increased DOJ settlements, enforcement was increased with the creation of the Consumer Financial Protection Bureau (CFPB) (Obama [2015]). The CFPB was tasked with

consolidating and reporting the fair lending complaints by the various regulatory bodies which provide oversight to banks (e.g., FDIC, Federal Reserve, OCC, and state regulators).

During the high volume of settlements in the immediate post-crisis era, the DOJ prioritized oversight of disparate lending to minority borrowers, with racial cases amounting to 84 percent of fair lending lawsuits (see, e.g., Gore [2017] and previous DOJ annual reports). We provide evidence that the enforcement was effective, as evidenced by a decline in loan spreads to Black and Hispanic borrowers and borrowers in LMI areas following the increase in enforcement. However, it is not immediately clear whether those lower rates reflected permanent changes in underwriting practices at banks. When settling lawsuits against them, charged banks committed to extensive, permanent changes in their controls and underwriting practices, but whether these banks followed through on this commitment to permanent change is an open question (Ropiequet et al. [2013]).

After several years of strict enforcement, it is possible the post-crisis enforcement went too far or was no longer necessary given the controls banks had in place following Dodd-Frank. For these reasons, during the 2016 presidential election cycle, then-candidate Trump made it clear he would back off fair-housing enforcement, in an effort to limit wasteful and overbearing government regulation (Bloomberg [2019], Merle [2018], US Senator Sherrod Brown [2020]).⁴ Following the presidential change in 2017, the new administration made good on its promises and

⁴ Under Trump, the White House repealed and replaced an Obama-era rule, the Affirmatively Furthering Fair Housing Rule (AFFH), which sought to combat historic racial discrimination in housing. It was implemented under the 1968 Fair Housing Act provision but gave more specificity and enforcement to the FHA (Kurtzleben [2020]). In addition, under Trump appointed CFPB director, Mulvaney, the CFPB announced only two cases enforcing the Fair Credit Act and settled both without monetary restitution (Consumer Federation of America [2019]).

immediately stopped enforcing fair lending laws. Figure 1 shows this shock in enforcement, which provides a setting to study banks' response to relaxed enforcement constraints.

2.2 Prior Literature and Hypothesis Development

Race-based discrimination has been a hot-button issue and is particularly concerning when it affects an individual's access to resources and capital. It has been alleged that banks and financial institutions engage in discriminatory lending practices in pursuit of profits. Researchers have examined HMDA data, with mixed results on whether banks violate fair lending laws through disparate lending to low-income and minority borrowers. Early studies showed evidence of such disparate lending, while later studies contend that controls for borrower characteristics related to creditworthiness eliminate the earlier findings (Bhutta and Canner [2013], Chu [2019], Begley and Purnanandam [2020], Dillbary and Edwards [2019], Gurin et al. [2016], Delis and Papadopoulos [2019]). Butler et al. [2021] examine racial discrimination in auto loans, finding lower loan approval rates for Black and Hispanic applicants, even when controlling for creditworthiness. However, unfortunately, there is also substantial evidence that diversity and economic class bear a significant correlation, therefore, it is difficult to disentangle creditworthiness from discrimination. That, and the changes to enforcement may be contributing factors in the mixed results from prior literature.

Mazur [2021] and Dou and Roh [2020] examine the HMDA data to determine if public disclosure of CFPB complaints altered approval rates for financially underserved communities. They show that an increase in CFPB complaints leads to a decrease in loan applications to banks, and CFPB complaints also change bank lending behavior, particularly in the presence of other forms of regulation and enforcement (Dou and Roh [2020], Mazur [2021]). These studies focus

on the Obama period when there was greater CFPB enforcement. While the disclosure of such complaints may induce a change in both borrower and bank behavior, Trump effectively disbanded the CFPB, which resulted in a lack of enforcement of CFPB complaints (Ropiequet and Noonan [2018]). Therefore, we add to the literature on CFPB complaints by examining the period before and after stringent enforcement.

We study lending discrimination by examining interest rate spreads for Black and Hispanic borrowers and in LMI areas using HMDA data. Prior literature has shown that loan officers have significant influence over interest rate spreads (Bushman, Gao, et al. [2021]). In some cases, manager and loan officers are compensated based on their loan volume and profitability (Behr, et al. [2020]), which can contribute to agency problems between owners and bank officers (e.g., Akins, Dow and Jeffrey [2017]). The negative effects of this agency problem on minority borrowers has been found and enforced by the DOJ in numerous cases (see appendix C for examples).

An et al. [2022] show that when regulators issue enforcement actions (EDOs), banks change their overall policies, including underwriting discretion applied in LMI areas and to minorities. Extensive enforcement during the Obama era may have permanently changed banks' underwriting policies regarding the use of discretion. Appendix C shows several examples of Obama-era DOJ enforcement actions against banks caught using illegal underwriting discretion. These banks all committed to permanently changing their lending behavior. This commitment, combined with modern pressure to demonstrate a commitment to social responsibility, may lead banks to permanently follow fair lending laws. However, it is possible that the changes were

temporary, and following the reduction in enforcement, banks may revert to previous lending practices.

We exploit the opportunity presented by a discrete shift in the enforcement of fair lending laws by the CFPB and DOJ to isolate the portion of interest rate discretion that could be discriminatory. All else equal, if loan risk is the primary consideration, then a shift in the enforcement regime should not lead to a shift in lending behavior, especially if prior fair lending violations led to permanent changes at banks. On the other hand, bank managers are motivated to increase profitability to optimally manage their loan portfolio risk, but they are constrained by bank regulators. Therefore, the tradeoff between risk and return is limited by regulatory oversight. If loan officers prefer to assign higher interest rates to borrowers on a discriminatory basis to achieve higher profits while keeping the loan portfolio risk constant, then relaxing enforcement should lead to greater discrimination.

Therefore, our hypothesis, stated in the null, is as follows:

Hypothesis: When enforcement of fair lending laws is reduced, banks do not alter lending behavior in LMI areas and to Black and Hispanic borrowers.

We directly test this hypothesis, and then in cross-sectional analysis, we examine factors that could mitigate or intensify changes in lending behavior following the decline in enforcement, including a bank's enforcement history with regulators, a bank's size, and a bank's disclosure of ESG initiatives.

First, we compare banks recently charged for violating fair lending laws and banks without recent violations, as past bank behavior could be an indication of its culture surrounding fair lending. Banks that have been charged recently with violation of fair lending laws may be more

or less likely to increase disparate lending when future enforcement is decreased. Charged banks commit to change control procedures and lending policies when they settle with regulators. If these commitments are genuine, we should not see disparate lending from charged banks in the future, regardless of changes in enforcement (see, e.g., *United States of America v. Suntrust Mortgage, Inc.* [2012]). Alternatively, if charged banks' violations were the result of their preferred discretion in underwriting, then when enforcement is reduced, these banks might unwind the changes they committed to in their settlements and return to their preferred discretionary underwriting behavior. If that is the case, we will find more disparate lending for previously charged banks in the absence of enforcement.

Next, because large banks are subject to greater oversight from regulators, including the DOJ and CFPB, larger banks might be more sensitive to changes in enforcement. Smaller banks consistently face less regulatory oversight, so there is less enforcement risk for smaller banks, regardless of current enforcement levels. For example, banks with less than \$10 billion in assets are not subject to direct CFPB oversight (Consumer Finance Protection Bureau [2022]). On one hand, then, because larger banks are more sensitive to regulatory enforcement, they may have a greater response to the decrease in enforcement of fair lending laws and alter their underwriting discretion policies in response. If this were the case, we would expect to see a greater increase in disparate lending for larger banks than for smaller banks following the decline in enforcement. Alternatively, larger banks may have internal substitutes for regulatory enforcement, such as technological sophistication and internal bank controls, which might keep them from taking advantage of a reduction in enforcement. If that were the case, we would not expect large banks to respond with more disparate lending behavior than small banks in the absence of enforcement. In our cross-sectional analysis, we test these competing possibilities.

Last, we examine cases where banks have high (low) disclosure of ESG initiatives. Basu et al. [2022] examine the Thomson/Refinitiv ESG ratings and compare them to fair lending practices in the period 2002-2018. They find that banks with higher ESG ratings issue fewer mortgages in low-income areas, suggesting that ESG disclosures by banks are simply social wash. They find this decreased lending is partially mitigated by CRA examinations (Basu et al. [2022]). Despite the possibility that it may just be window-dressing, other research has shown that disclosure of CSR reduces the cost of capital, reduces analyst forecast error, and is associated with improved accounting quality (Dhaliwal et al. [2011], Dhaliwal et al. [2012], Kim, et al. [2012], Moser and Martin [2012], Balakrishnan et al. [2011]). One study suggests that there is an impact only when the issues are material to the corporation (Khan et al. [2016]).

Because of the importance and potential abuse of ESG reporting, the Securities and Exchange Commission (SEC) has implemented CSR reporting standards in the US to streamline information provided to shareholders (Securities Exchange Commission [2022]). Researchers have studied the economic effects of the reporting standards themselves and related disclosures (Christensen et al. [2019]). In May 2022, the SEC proposed amendments to the previously more general standards and added reporting forms to promote consistent, comparable, and reliable information for investors concerning funds' and advisers' incorporation of environmental, social, and governance (ESG) factors (Securities Exchange Commission [2022]). However, at least with bank lending behavior, it is still an open question whether these disclosures are reliable.

3 Sample Selection and Research Design

3.1 Sample and Data

In 1975, Congress passed the Home Mortgage Disclosure Act (HMDA), which requires all banks to report demographic data on their mortgages and mortgage applications to the federal government. The database of these mortgage applications became public in 2007 and is now maintained by the CFPB. We start our sample selection by downloading all filed mortgage applications in the United States from 2013 to 2020. We drop mortgage applications at credit unions and non-depository institutions and applications with missing HMDA data. Because our main variable of interest is loan spread, we keep only accepted applications.⁵ We drop loans with loan spreads coded as missing or with spreads greater than 20 percent, which likely represent typographical errors.⁶ We gather bank-specific variables from Call reports for commercial banks and Y9-C reports for Bank Holding Companies and drop any applications to banks without necessary bank-specific control variables. This results in a final sample of 19,937,354 accepted mortgage applications from 3,015 banks. Table 1 summarizes our sample selection process. The HMDA data provides basic demographic information for the borrower, such as gender, race, and income. It also includes income information for the census tract and other census-tract level data for necessary controls. As defined in the CRA, we define LMI tracts as those tracts with a median income of less than 80% of the median for the metropolitan area the tract belongs to (Board of Governors of the Federal Reserve System 2018). We collect county-level variables, such as education, housing price growth, and poverty rate from the U.S.

⁵ In our additional analysis section, we keep all applications to examine the acceptance rate.

⁶ There were only 11 such observations during our sample period.

Department of Agriculture, the US Census Bureau, and the Federal Housing Finance Agency, respectively. See appendix A for full variable definitions.

Our primary dependent variable is loan spread, which HMDA defines as the interest rate on the mortgage minus the contemporaneous rate on treasury bills of similar maturity. Before 2018, banks did not provide the loan spread unless the rate was more than 1.5% above the treasury rate for first-lien loans and 3.5% above the treasury rate for subordinate loans, such as home-equity lines of credit. Because of this, a large majority of the actual spreads in our sample are not available to us. However, we know they are below the defined threshold. To make our sample uniform, we treat all accepted loans with spreads below the reporting threshold as having a spread right at the respective threshold (1.5% and 3.5%), even for 2018 and later when more data was available. In unreported robustness tests, we also use the median of the true underlying spreads from the later period as the threshold, and the results are consistent.

3.2 Empirical Design

Consistent with prior literature, and based on the focus of the DOJ, we study the effects of decreased enforcement specifically on Black and Hispanic borrowers and borrowers in LMI areas. We use a difference-in-differences design and compare Black and Hispanic borrowers (borrowers in LMI areas) to non-Black and Hispanic borrowers (borrowers not in LMI areas) before and after the reduction in fair housing enforcement. We begin our post-period in 2017 when President Trump took office and fulfilled campaign promises to end unnecessary regulation by making changes in the leadership at the CFPB and DOJ. Specifically, to test our hypothesis, we use the following specification:

$$Loan\ Spread = \alpha_i + \beta_1 Black\ or\ Hispanic\ (LMI)_i + \beta_2 Post * Black\ or\ Hispanic\ (LMI)_i$$

$$+ X_1 \text{Bank Controls}_{bt} + X_2 \text{County/Tract Controls}_{ct} + X_3 \text{Borrower Controls}_i + \gamma_t + \delta_b + \varepsilon_i \quad (1)$$

Black or Hispanic is an indicator variable set to one if either the primary or secondary borrower is Black or Hispanic, and zero otherwise. *LMI* is an indicator variable set to one if the loan is made in an LMI census tract, and zero otherwise. *Post* is an indicator variable set to one if the year is 2017 or later, and zero otherwise.

X_1 is a vector of bank controls including *Bank Size*, *Bank ROA*, and *Bank Mortgage Percentage*. We control for these variables to account for differences across banks such as potential returns to scale and profitability that may lead to higher (lower) spreads for certain groups independent of the change in enforcement. In addition to these observable bank characteristics, the bank fixed effects capture unobservable bank characteristics that could be correlated with loan spreads.

X_2 is a vector of county/tract controls including *County Education*, *County Housing Price Index*, and *County Poverty* rate. These variables are meant to control for potential demand effects that may drive spreads upwards as well as to partially control for borrower characteristics that are unavailable in the HMDA data.

X_3 is a vector of controls for borrower characteristics including *Applicant Income*, *Male Applicant*, *Lone Applicant*, and loan type (*First Lien* and *Insured Loan*). Although banks are not allowed to discriminate based on sex, marital status, or other factors unrelated to creditworthiness, we control for these variables to further isolate the effect on Black and Hispanic borrowers and LMI borrowers. We use applicant income as a proxy for the

creditworthiness of the applicant, as income is correlated with credit score (Albanesi et al. [2022], Beer et al. [2018]).

There are two key assumptions in our difference-in-differences research design. First, the difference-in-differences design requires common trend and constant bias, which are jointly known as the parallel-trends assumption (Lechner [2010]). This assumption requires that, in absence of treatment, the treated and the untreated group would have continued with parallel slopes with respect to the outcome variable. This assumption is not directly testable, but we can find some assurance that it holds by comparing the trends between the treated and untreated groups before treatment. We compare the trends in loan spreads for Black or Hispanic (LMI) borrowers compared to non-Black or Hispanic (non-LMI) borrowers and report this comparison in figure 2. In figure 2 panel A, we show simple averages for spreads over time for Black and Hispanic (LMI) and non-Black or Hispanic (non-LMI) borrowers, setting all spreads below the censoring threshold to the threshold as in our main analysis. In the pre-period, we see a general consistency in trend slopes for the treated and non-treated groups, particularly when compared to the slope disparities seen in the post-period. In figure 2 panel B, we show the same comparisons while controlling for an overall time trend in loan spreads, and we find similar results.

The second assumption in the difference-in-differences design is the Stable Unit Treatment Value Assumption (SUTVA), which assumes, among other things, that the treatment is not subject to anticipatory effects from banks and borrowers, and the treatment does not fundamentally alter the mortgage lending environment (Lechner [2010]; Wooldridge [2010]). Although the SUTVA requirement is not directly testable, in this setting we are comfortable that this assumption holds, as most Americans could not have confidently predicted President

Trump’s victory (FiveThirtyEight [2016]; RealClearPolitics [2016]; Katz [2016]). In addition, campaign promises are often exaggerated and the direct execution is unclear. Further, since this shock affects fair lending specifically and not the entire mortgage lending environment, we have no reason to believe there were fundamental changes to the overall mortgage lending market starting in 2017. By choosing a singular shock (an over 99% drop in fines) to the enforcement environment of fair housing laws, we isolate the effect of the treatment.

A limitation of the HMDA data is that applicant credit scores are not disclosed. Despite this limitation, early class action lawsuits and DOJ settlements using HMDA data were successful absent the availability of borrower credit scores (See, e.g., Waldrup v. Countrywide Financial Corporation [2013]). In addition, because we use a difference-in-differences research design, excluding credit scores is only an issue if there is a systematic change in credit scores from the pre-period to the post-period for Black and Hispanic (LMI) borrowers that differs from any systematic changes in credit scores for non-Black and Hispanic (non-LMI) borrowers. Federal Reserve research, for which proprietary data and access to credit scores is available, has shown that credit scores for mortgage applicants have consistently increased over time for all groups, but there has not been a substantial difference in the increase for any one race over others during our sample period (Avery et al. [2011], Bhutta and Canner [2013], Bhutta et al. [2022]).

We present all our tests using OLS regression, which produces estimates similar to more structured estimators in many cases despite its simplicity (Wooldridge [2010]).⁷ Fixed effects for year and bank are represented by γ_t and δ_b , respectively. All standard errors are clustered at

⁷ In untabulated analysis, we also use fixed effects Poisson regression to more closely model the distribution of the underlying data, since Fixed Effects Poisson is a consistent estimator that is fully robust to non-normality of underlying data. Poisson is also robust to using continuous dependent variables and allows for controlling for fixed effects (Wooldridge [1999]). The results are robust to using Poisson Fixed Effects Regression in place of OLS.

the bank level and all continuous independent variables are winsorized at the 1% and 99% levels.⁸

4 Results

In table 2, we report descriptive statistics for all the variables used in our analysis. Panel A includes the entire sample of accepted loans. In panel B, we compare Black and Hispanic to non-Black or Hispanic borrowers. In the univariate, Black and Hispanic (non-Black and Hispanic) borrowers have similar *Loan Spreads*, 1.67 (1.68), but a higher percentage are in *LMI* areas 67% (53%), with higher *County Poverty* 14.21 (12.56). The bank-level control variables: *Size*, *ROA*, and *Bank Mortgage Percentage* are consistent in each group of borrowers. For the borrower level characteristics, the Black and Hispanic borrowers have similar *County Education*, slightly lower *Applicant Income*, more *Lone Applicants*, and fewer *Male Applicants*. For the loan characteristics, the *First Lien* percentage is consistent, but the percentage of *Insured Loans* is higher. Within the high-spread loans, in the univariate, Black and Hispanic borrowers have a lower *Loan Spread* on average.

In panel C, we compare the subsample of loans in LMI tracts to those in non-LMI tracts. In the univariate, the *Loan Spread* in LMI (non-LMI) areas is lower, 1.61 (1.76) and there is a higher percentage of Black and Hispanic borrowers, 6% (3%). The bank-level characteristics are similar across the two groups. Borrower characteristics are similar for *County Education*, *Lone Applicant*, and *Male Applicant*. However, *Applicant Income* is lower. At the county level, there is a lower *Housing Price Index* and higher *County Poverty*. There is also a higher percentage of loans classified as *First Lien* and *Insured Loan* in LMI areas compared to non-LMI areas.

⁸ The results are robust to clustering errors at the county level also.

In table 3, we present the results of our test of our main hypothesis by using OLS to estimate equation (1) with loan spread as the dependent variable for the entire sample of accepted loan applications. We report the results with year fixed effects in all columns to address concerns regarding macroeconomic factors and time trends. We report the results without bank fixed effects in columns (1) and (3) and with bank fixed effects in columns (2) and (4) and find consistent results with (without) bank fixed effects. Standard errors are clustered at the bank level, and all continuous independent variables are winsorized at the 1% and 99% levels. In all columns, we control for bank-level, borrower, county, and loan-level characteristics.

We document a positive, significant coefficient estimate on the interaction term between *Post* and *Black or Hispanic*, which indicates an increase in *Loan Spread* in the post period for Black and Hispanic borrowers of .016 (.013), an 8.1 percent increase over the median *Loan Spread* for borrowers in our sample. We find similar results for borrowers in LMI tracts, with a positive, significant coefficient on the interaction term between *Post* and *LMI* of .014 (.021). Combined, these results show that, controlling for bank, borrower, county, and loan characteristics, reduction in the enforcement of fair housing laws is associated with higher loan spreads to Black and Hispanic borrowers and borrowers in LMI areas. This is consistent with lenders maximizing profits through discriminatory behavior in the absence of enforcement, despite laws and bank internal controls.

In table 4, we report the results within the subsample of LMI tracts. Consistent with table 3, we report the results with all control variables, year fixed effects in all columns, without bank fixed effects in columns (1) and (3) and with bank fixed effects in columns (2) and (4), cluster

standard errors by bank, and winsorize all continuous independent variables at the 1% and 99% levels.

In columns (1) and (2), we document a positive, significant coefficient estimate for the interaction between *Post* and *Black and Hispanic*. This indicates that within LMI areas, Black and Hispanic borrowers have a higher increase in interest rates in the post-period relative to the pre-period when compared to non-Black or Hispanic borrowers within LMI areas. In columns (3) and (4), we report the results comparing the poorest 25% of LMI tracts to the more moderate-income tracts in the LMI subsample. For this test, we create an indicator variable, *Poorest 25% Tract*, set to one for LMI tracts that are in the lowest 25% of income and zero otherwise. The positive, significant coefficient on the interaction term between *Post* and *Poorest 25% Tract* suggests that within LMI areas, the higher rates are concentrated in the lowest income areas. The results in table 4 suggest additional loan disparities for Black and Hispanic borrowers within already underprivileged areas and borrowers in the poorest 25% of LMI tracts.

Together, the results reported in table 3 and table 4 provide support to for our hypothesis, as they indicate that a decrease in the enforcement of fair lending laws led to an increase in spreads for Black and Hispanic borrowers and borrowers in LMI areas, suggesting that lenders were constrained by enforcement in the pre-period from maximizing their profitability through lending behavior that systematically disadvantages Black and Hispanic borrowers and borrowers in LMI areas.

In table 5, we show the effects of increased enforcement by replicating the tests of our main hypothesis between 2007 and 2014, a period which included the creation of the CFPB and a significant increase in DOJ enforcement in 2011. The variable *Post* in this table is set to one starting in 2011 and is zero otherwise. The negative, significant coefficients on the interaction

term between *Post* and *Black or Hispanic* in columns (1) and (2) suggest that the enforcement changes beginning in 2011 were effective in reducing rates of Black and Hispanic Borrowers. In columns (3) and (4) we see a marginally significant positive coefficient on the interaction term between *Post* and *LMI*, which is insignificant when we add bank fixed effects. 84% the DOJ settlements and CFPB complaints in the Obama period were for racial discrimination, which could explain why the change in enforcement in 2011 affected Black and Hispanic borrowers during this time but not borrowers in LMI areas (see Gore [2017] and previous DOJ annual reports). However, as shown in tables 3 and 4, when enforcement dropped in 2017, loan spreads increased for both Black and Hispanic borrowers and borrowers in LMI areas, suggesting the later decline in enforcement affected both groups.

5 Additional Analysis

5.1 Cross-sectional Analysis

We next examine cross-sections of the sample where we believe the results would be more or less likely given our interpretation of our main findings. Specifically, we examine areas where we would expect this drop in enforcement to have the most effect.

We first test whether banks charged by the DOJ or CFPB in the recent past are more likely to increase rates following a drop in enforcement, given that these banks have shown themselves to be constrained by regulators in the past. In table 6 panel A, we test this question by splitting the sample between banks that were fined by the DOJ or CFPB during the high-enforcement era for mortgage lending discrimination (*Charged* = 1) and those that were not (*Charged* = 0). Specifically, we pull DOJ settlements and CFPB enforcement actions relating to the ECOA or FHA. This gives us a sample of 20 banks that were charged during the high-enforcement era. Among the top 10 banks with the most mortgages in our sample, four qualify

as charged banks and six as uncharged. Because these banks have proven in the past to be bad actors concerning fair housing laws, if internal bank behavior changes were temporary, we would expect an increase in loan spreads to Black and Hispanic borrowers and in LMI areas for these banks once enforcement declines. That is, based on their past behavior, these banks would be more likely to respond to a decrease in enforcement with an increase in illegal behavior. However, if the changes made because of Obama-era enforcement were permanent, we would expect these banks to be unable to increase their spreads following a change in enforcement due to either stringent internal controls or underwriting procedures that demonstrate permanent commitment.

We show the results of these tests in table 6 panel A. We document a positive, significant coefficient estimate on the interaction term between *Post* and *Black and Hispanic* only for charged banks. In addition, in a Wald test for coefficient differences, we find that the difference between charged banks and non-charged banks is significant with a chi-squared of 3.78. For LMI banks, we document a positive, significant coefficient estimate on the interaction term between *Post* and *LMI* for both charged and non-charged banks. However, the coefficient is greater for charged banks, and the difference in coefficient magnitudes is significant with a chi-squared of 14.19. These results suggest that for Black and Hispanic and LMI borrowers, charged banks have a significantly higher increase in loan spreads following the drop in enforcement. This is consistent with commitments from charged banks being mere lip service to regulators and these banks returning to maximizing profitability through lending with discriminatory outcomes.

In table 6 panel B, we test the effect of size on enforcement constraint, as large banks are generally more subject to federal enforcement and therefore saw a bigger change in 2017. We define large banks as banks with greater than \$10 billion in assets. We use this cutoff because, at \$10 billion in assets, banks become subject to CFPB oversight (Consumer Financial Protection Bureau [2022]). The coefficient of the main effect of *Black and Hispanic* in column (2) and the coefficient of the main effect of *LMI* in column (4) suggests that in the pre-period, large banks are less likely to charge disparate rates to Black and Hispanic borrowers and borrowers in LMI tracts. This is in line with more oversight leading to less disparate lending. However, in the post period, the coefficient estimate on the interaction between *Post* and *Black or Hispanic (LMI)* is positive and significant for large banks and insignificant for small banks. These coefficients are statistically different from one another with a chi-squared of 11.52 (23.74). This suggests that large banks become more like small banks in their lending to Black and Hispanic borrowers and LMI areas following a decrease in oversight. This is consistent with banks using discriminatory behavior to maximize profitability following a drop in enforcement. Therefore, although large banks are, in the pre-period, less likely to give disparate rates to Black and Hispanic borrowers, it seems that when CFPB enforcement disappeared under the Trump administration, the regulatory environment for large banks became more similar to the regulatory environment for small banks, and large banks responded by relaxing their commitment to fair lending laws.

In a final cross-section, we test whether banks that have a greater outward commitment to social responsibility (in the form of ESG disclosures) lend in a more socially responsible manner, particularly in the face of reduced enforcement. If banks with higher ESG ratings lend more responsibly than others when enforcement is reduced, then this would suggest that the pressure to disclose and follow ESG commitments substitutes for enforcement when enforcement drops. We

use the community measure of the ESG scores from Thomson/Refinitiv as a proxy for bank social commitment to evaluate the moderating effect of social commitment on the increase in loan spreads for LMI and Black and Hispanic borrowers. The “community” score seeks to capture a company’s overall commitment to the community, with inputs such as ethical code of conduct, community initiatives, whistleblower protection, etc. We label a bank as *HighESG* if it has an ESG score in the top quartile for that year, and *LowESG* if it is in the lowest quartile.⁹

We show the results of our ESG test in table 6 panel C. For both *HighESG* and *LowESG* banks, the interaction term between *Post* and *Black and Hispanic (LMI)* is positive and significant, reflecting an increase in loan spreads to Black and Hispanic and LMI borrowers following the decrease in enforcement regardless of ESG commitment level. We use Wald tests to confirm that these coefficients are not statistically different from one another. This is consistent with recent research, which finds that ESG disclosures are not correlated with lending behavior but instead reflect social wash (Basu et al. [2022]).

5.2 Robustness Tests

It is also possible that some of our research design choices are driving our results. Therefore, we perform robustness tests to rule out that possibility. We report the results of our robustness tests in table 7.

First, it is possible that the large number of censored outcomes in our dependent variable is affecting the results. Therefore, we limit the sample to just the loans with spread data available, which includes any loans with spreads greater than 1.5% for first liens and 3.5% for subordinate liens. In table 7 columns (1) and (2), we report the results of this high-risk borrower

⁹ In untabulated analysis we find that the results are consistent if we split at the median or in quintiles as well. They are also consistent if we use the narrower diversity score, or the broader social score.

subsample. The positive, significant coefficient estimate on the interaction variable between *Post* and *Black or Hispanic (LMI)* suggests that our results hold even within the smaller subsample of high-risk borrowers.

Second, the results could be driven by time period choices in our analysis, so we also examine an alternative time period. Because President Trump did not take office until the end of January 2017, and because not all the changes at the DOJ and the CFPB were immediate, we re-run our tests without 2017. Additionally, to tighten the causal relation and to eliminate any potential effects of the Covid-19 pandemic, we run our main test with just two years in our pre-period and two years in our post-period. This leaves a sample from 2015 to 2019, excluding 2017. We report the results of this test in table 7 columns (3) and (4), and the positive, significant coefficient estimate on the interaction variable between *Post* and *Black or Hispanic (LMI)* are consistent both in economic and statistical significance with the original specification. Additionally, in untabulated analysis, we find the results are also economically and statistically identical if we keep the longer window and simply eliminate 2017.

Lastly, banks could be lending more, and as such, they would necessarily need to lend to higher-risk borrowers to increase their portfolios. If this were true, then we might see an increase in acceptance rates. Therefore, we extend the sample to all loan applications, both accepted and rejected, and set the indicator variable *LoanAccepted* to one if the loan was accepted and zero otherwise. The insignificant coefficient estimate on the interaction variable between *Post* and *Black or Hispanic (LMI)* suggests there was not a change in acceptance rates for Black and Hispanic borrowers or in LMI areas following the decline in enforcement of fair housing laws.

6 Conclusion

We use the significant decline in the enforcement of fair lending laws to measure discriminatory mortgage lending behavior. Banks have a legal and social obligation to provide credit to underserved communities without discriminating based on factors such as race. After the 2008 financial crisis, the enforcement of fair lending laws was increased, with steep fines levied on banks for discrimination in lending to Black and Hispanic borrowers and to borrowers in lower- and middle-income (LMI) areas. A change in presidential agenda in 2017 effectively shut down federal enforcement of fair lending laws, decreasing enforcement by over 99%. We exploit this shock to enforcement to evaluate whether bank behavior was on average constrained by enforcement and whether banks would therefore have optimally chosen discriminatory lending practices in the absence of enforcement, despite internal controls and outward social commitment. We find that banks were on average increase loan spreads for Black and Hispanic borrowers and in LMI areas following the decrease in enforcement. Further, we find that Black and Hispanic borrowers within LMI areas and borrowers in the poorest LMI areas face even larger increases in their loan spreads.

In cross-sectional tests, we find that the increase in spreads is greater for banks that were previously subject to DOJ or CFPB enforcement. We also find a larger increase for large banks than for small banks. Last, we study whether banks' outward commitment to social responsibility moderates the effect of declined enforcement. We find that, regardless of their outward social commitment, banks increase loan spreads for disadvantaged borrowers during the period with reduced enforcement. This is consistent with prior research that suggests banks reported social commitment does not align with their underwriting behavior.

This study makes several contributions. To our knowledge, we are the first to show that a decrease in fair housing enforcement is associated with increased loan spreads in LMI areas and to Black and Hispanic borrowers. The shock to enforcement, with no corresponding shock to creditworthiness allows us to isolate the effect to discrimination, rather than creditworthiness. We believe this result is informative to proponents of fair lending laws, as we are able to directly see the constraining effect of fair lending enforcement on bank profit maximizing behavior. We also contribute to discussions of lasting effects of enforcement, as we find that the high enforcement period did not have long-term effects on charged banks' underwriting policies. Additionally, our paper speaks to the debate on corporate social responsibility and ESG disclosures, using a significant shock to fair lending enforcement to evaluate if the commitment to social responsibility translates into action when few external forces exist to shape firm behavior. Our finding that commitment to social responsibility does not seem to have practical implications in lending can help inform the current debate regarding the value of mandating and auditing such disclosures. Finally, we contribute to the ongoing social discussion around the disparate impact on disadvantaged and underserved borrowers, providing evidence that enforcement of fair lending laws does curb unfair lending practices.

Appendix A: Variable Definitions

Variable	Definition	Data Source
Dependent Variables		
<i>Loan Spread</i>	For loans secured by a first lien (secondary lien), this variable equals its true value if it is above 1.5% (3.5%). For spreads below 1.5% (3.5%) actual spread is not provided by HMDA before 2018, therefore we set all to 1.5% (3.5%). Dropped all loan spreads greater than 20%.	Home Mortgage Disclosure Act Database (HMDA)
<i>Loan Accepted</i>	Indicator variable set to one if the mortgage application was accepted and zero otherwise.	HMDA
Independent Variables of Interest		
<i>Post</i>	Indicator variable set to one if the mortgage application decision was made after 2016, and zero otherwise.	HMDA
<i>Black or Hispanic</i>	Indicator variable set to one if the applicant's race is coded either "Black" or "Hispanic" and zero otherwise.	HMDA
<i>LMI</i>	Indicator variable set to 1 if the median family income for the tract is less than 80% of the median income for the Metropolitan area (MSA), as defined as an LMI tract by HMDA, and zero otherwise.	HMDA
Sample Cross Sections		
<i>Charged Bank</i>	Indicator variable set to one if the bank had a DOJ lawsuit or CFPB enforcement action between 2007 and 2016 for violating fair lending laws, and zero otherwise.	Department of Justice / Consumer Financial Protection Bureau websites
<i>Large (Small) Bank</i>	Indicator variable set to one if the bank's assets are greater than \$10 billion, by bank/year.	Call/Y9-C Reports
<i>High (Low) ESG</i>	Indicator variable set to one if bank is in the top quartile of the "community" score in the ESG database and equal to 0 if the bank is	Thomson/Refinitiv ESG

	in the bottom quartile.	
<i>High-Risk Loans</i>	First (secondary) lien mortgages, are high risk if they have an interest rate greater than 1.5% (3.5%).	HMDA
Control Variables		
<i>Bank Size</i>	Natural log of beginning assets/1,000	Call/Y9-C Reports
<i>Bank ROA</i>	Net income divided by beginning assets	Call/Y9-C Reports
<i>Bank Mortgage Percentage</i>	Mortgages as a percentage of total loans	Call/Y9-C Reports
<i>County Education</i>	The percentage of adults with a bachelor's degree by county, averaged over the course of the sample.	US Department of Agriculture (USDA)
<i>County Housing Price Index</i>	Housing Price index using 2000 as the base year by county year.	Federal Housing Finance Agency
<i>Applicant Income</i>	Equals one plus the natural log of [applicant income divided by 1,000].	HMDA
<i>County Poverty Percentage</i>	Average overall poverty percentage as defined by USDA over the course of the sample, by county year.	US Census Bureau SAIPS
<i>Tract Minority Population</i>	Equals one minus the percentage of the tract that identifies as "white only" by tract year.	HMDA
<i>Tract Median Family Income</i>	Equals the natural log of median family income, by tract year.	HMDA
<i>Lone Applicant</i>	Indicator variable set to one if there is no co-applicant on the loan application, zero otherwise.	HMDA
<i>Male Applicant</i>	Indicator variable set to one if the first applicant is male and zero otherwise	HMDA
<i>First Lien</i>	Indicator variable set to one if the loan application is for a first lien and zero otherwise.	HMDA
<i>Insured Loan</i>	Indicator variable set to one if loan is insured by the Federal Housing Administration, the Veterans Administration, the Farm Service Agency, or the Rural Housing Service (HMDA Loan Type 2, 3, or 4), and zero otherwise.	HMDA

Appendix B: Example of Bank Social and Diversity Disclosures

From Citigroup's 10-K (emphasis added):

SUSTAINABILITY AND OTHER ESG MATTERS

Introduction

Citi has progressively developed its understanding of environmental, social and governance (ESG) issues for more than 20 years and has a demonstrated record of ESG progress, including participating in the creation and adoption of ESG-related principles and standards. This section summarizes some of Citi's key ESG initiatives, including its Sustainable Progress Strategy and net zero and Action for *Racial Equity commitments*.

In January 2022, Citi published its 2021 Task Force on Climate-Related Financial Disclosures (TCFD) Report to provide its stakeholders with information on Citi's continued progress to address climate risk and to fulfill its commitment to publish an initial net zero plan within one year of announcing the net zero commitment. This represents Citi's fourth TCFD Report.

For information regarding Citi's management of climate risk, see "Managing Global Risk—Other Risks—Climate Risk" below.

ESG Governance

Citi's Board of Directors (Board) provides oversight of Citi's management activities to ensure responsible business practices (for additional information, see "Managing Global Risk—Risk Governance" below). For example, the Nomination, Governance and Public Affairs Committee of the Board oversees many of Citi's ESG activities, including reviewing Citi's policies and programs for environmental and *social sustainability, climate change, human rights, diversity and other ESG issues*, as well as advising on engagement with external stakeholders.

The Risk Management Committee of the Board provides oversight of Citi's Independent Risk Management function and reviews Citi's risk policies and frameworks, including receiving climate risk-related updates.

In 2021, Citi formed a Global ESG Council consisting of senior members of its management in order to provide enhanced oversight of Citi's ESG goals and activities. In addition, a number of teams and senior managers contribute to the oversight of different areas such as *sustainability; community investing; talent and diversity*; ethics and business practices; and remuneration.

Action for Racial Equity

Effectively responding to the needs of communities of color in the U.S. represents a strategic imperative for the private sector. A wide range of data and studies have found that many major gaps in economic opportunity, education, income, housing and wealth run along racial lines, particularly between Black and white households. These gaps have not only had implications for Black Americans and other people of color but the broader economy as well.

Accordingly, in September 2020, Citi and the Citi Foundation announced *Action for Racial Equity to help provide greater access to banking and credit in communities of color, increase investment in Black-owned businesses, expand affordable housing and homeownership among Black Americans and advance anti-racist practices within Citi and across the financial services industry*. As part of Action for Racial Equity, Citi and the *Citi Foundation have invested more than \$1 billion in strategic initiatives to help close the racial wealth gap* and increase economic

mobility in the U.S. Action for Racial Equity builds on Citi's longstanding focus on advancing financial inclusion and economic opportunity for communities of color in the U.S. and accelerates its efforts in a time of increased calls for racial equity and shifting population demographics in a changing economy. In line with Citi's continued commitment to expand access to banking products and services that can help advance economic progress—especially for underbanked and unbanked communities—on February 24, 2022, Citi announced plans to eliminate overdraft fees, returned item fees and overdraft protection fees by mid-2022. In addition to eliminating these fees, Citi will continue to offer a robust suite of free overdraft protection services for its consumers. See Note 5 to the Consolidated Financial Statements for details of Citi's Commissions and fees revenues.

Additional Information

For additional information on Citi's environmental and social policies and priorities, see Citi's website at www.citigroup.com. Click on "About Us" and then "Environmental, Social and Governance." For information on Citi's ESG and Sustainability (including climate change) governance, see Citi's 2021 Annual Meeting Proxy Statement available at www.citigroup.com. Click on "Investors" and then "Annual Reports & Proxy Statements."

Appendix C: Examples of Bank Enforcement actions citing Discretionary Lending

Charter Bank [2014]

“Charter charged interest rates to Hispanic borrowers between at least January 1, 2009 and June 30, 2014 that were 108 basis points higher, on average, than the rates charged to similarly situated non-Hispanic borrowers. This disparity is statistically significant, and the difference is based on national origin and not based on creditworthiness or other objective criteria related to borrower risk. The disparity means that hundreds of Hispanic borrowers were obligated to pay, on average, over \$150 more each in interest than similarly situated non-Hispanic borrowers. The higher rates of interest that Charter charged to Hispanic borrowers for vehicle-secured consumer loans are a result of Charter's policy or practice of giving its employees broad subjective discretion not based on credit risk factors in setting the interest rate for vehicle-secured consumer loan transactions (United States of America v. Charter Bank [2016]).

C&F Mortgage Corporation [2011]

“During 2007, C&F permitted loan officer discretion in negotiating loan prices with borrowers, resulting in overages or underages. Baseline, or par, loan pricing - the price of the loan before any overage or underage - was communicated to employees through the daily distribution of ‘rate sheets.’ Employees were permitted to negotiate loan prices, which could result in an overage or underage. C&F did not require its loan officers to document the reasons for receiving overages or underages. The compensation of C&F loan officers was based in part on the amount of any overages or underages in the loans they originated” (United States of America v. C&F Mortgage Corporation [2011]).

First United Security Bank [2009]

“Between at least January 2004 and December 2004, First United Security Bank loan officers did not use formal, written, uniform underwriting guidelines and procedures to set final interest rates. ...Loan officers were provided with standard rate sheets, but the Bank granted them broad discretion to engage in subjective decision-making and increase or decrease the rate up to one percentage point” (United States of America v. First United Security Bank [2009]).

SunTrust Mortgage [2012]

“It was SunTrust Mortgage’s business practice to allow its employees who originated loans through its retail channel to vary a loan’s interest rate and other fees from the price initially set based on a borrower’s objective credit-related factors. This subjective and unguided pricing discretion resulted in African American borrowers paying more...” (United States of America v. Suntrust Mortgage, Inc. [2012]).

Wells Fargo [2012]

“Wells Fargo adopted loan pricing and origination policies that allowed the personnel who originated its loans both to set the loan prices charged to borrowers and to place borrowers into loan products in ways unconnected with credit risk. Wells Fargo created financial incentives for its employees and mortgage brokers by sharing increased revenues with them” (United States of America v. Wells Fargo Bank, NA [2012]).

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Figure 1: Lending Enforcement by Year

This figure reports lending enforcement overseen by the U.S. Department of Justice from 2006 to 2020, with the y-axis reporting dollar value of settlements. We hand collect this data from annual Department of Justice Reports to Congress Pursuant to the Equal Credit Opportunity Act Amendments of 1976 (See, e.g., Gore [2017]). All years in this figure are defined from February to January of the following calendar year to match the presidential term calendar.

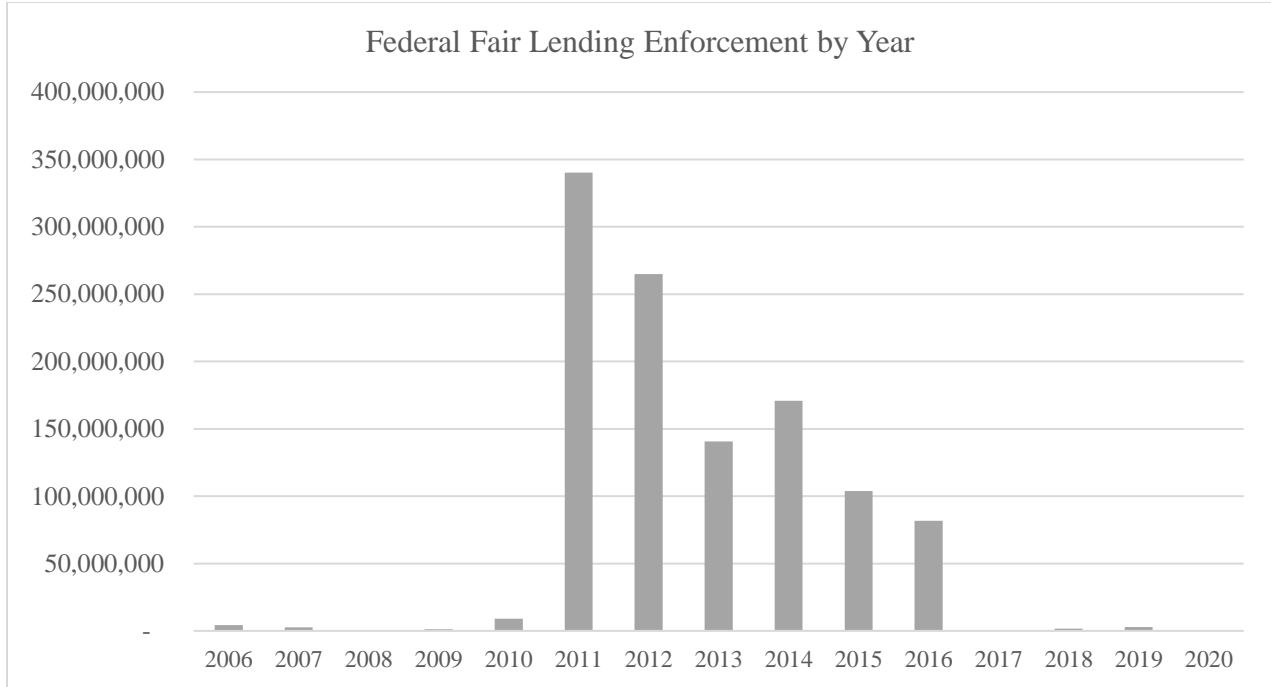
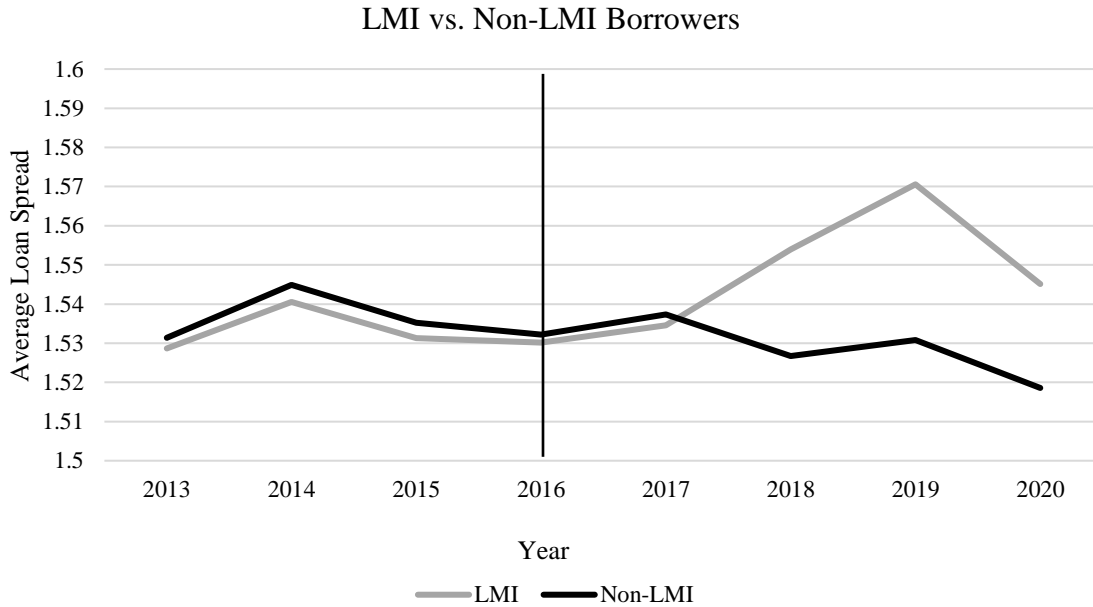
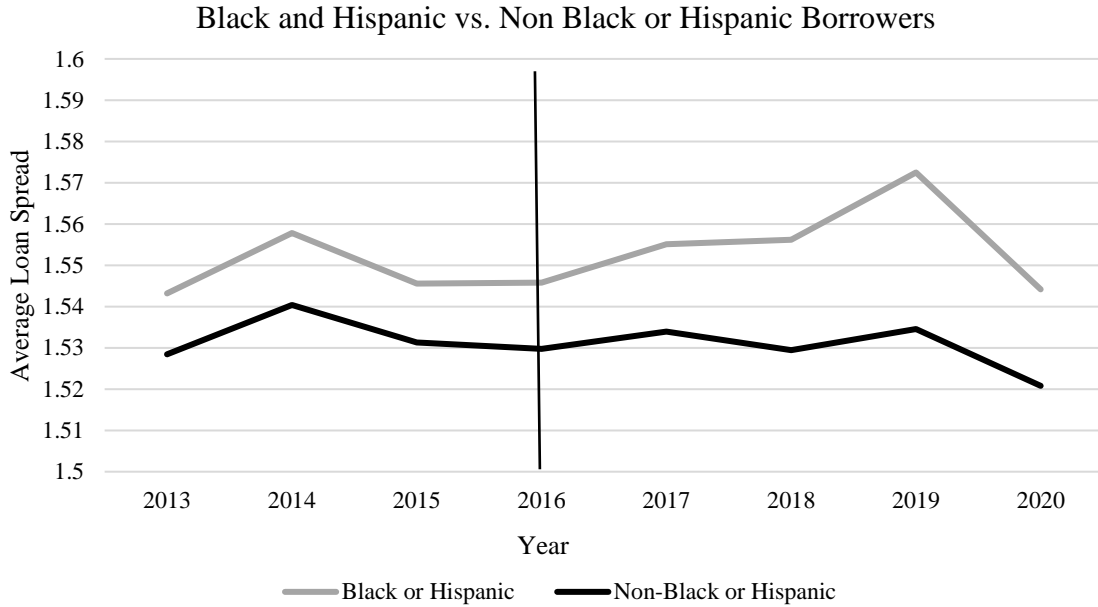


Figure 2: Trends in Loan Spreads over Time

This figure illustrates the trend in average loan spread over time for Black or Hispanic (LMI) and non-Black or Hispanic (non-LMI) borrowers for first liens.¹⁰ This average spread includes all censored values set upward to the threshold of 1.5. Panel A shows simple averages by group, and Panel B shows these averages after controlling for a linear time trend.

Panel A: Average Loan Spreads over Time by Treatment Group



¹⁰ Since we cannot control for loan type in this figure, we show averages only for first liens, which account for 93 percent of our sample. Results are consistent if we include subordinate liens in the averages.

Panel B: Average Loan Spreads over Time Controlling for Linear Trend

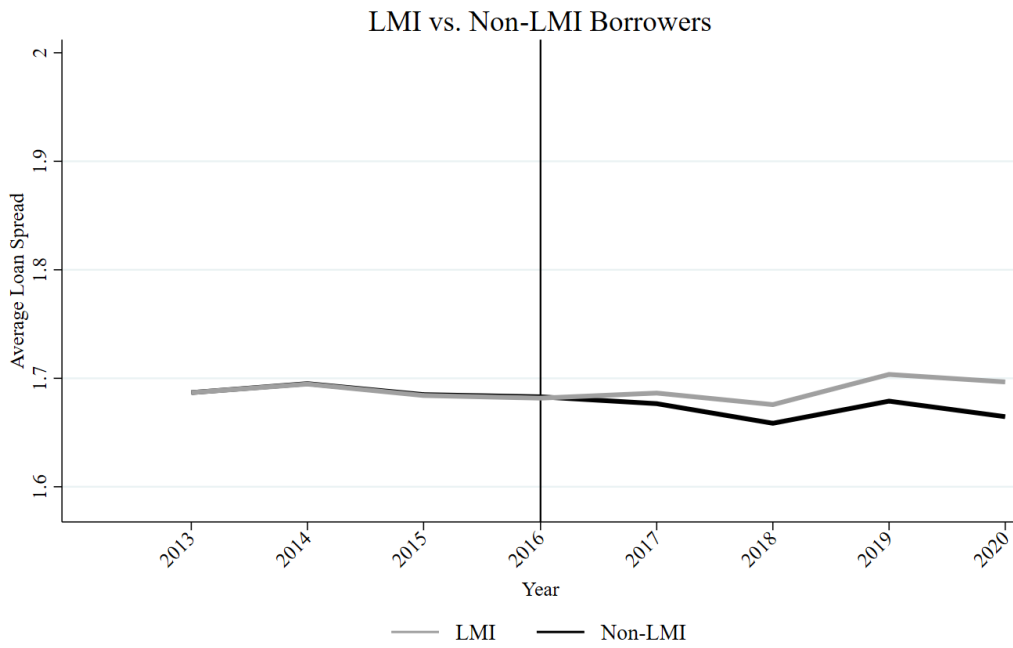
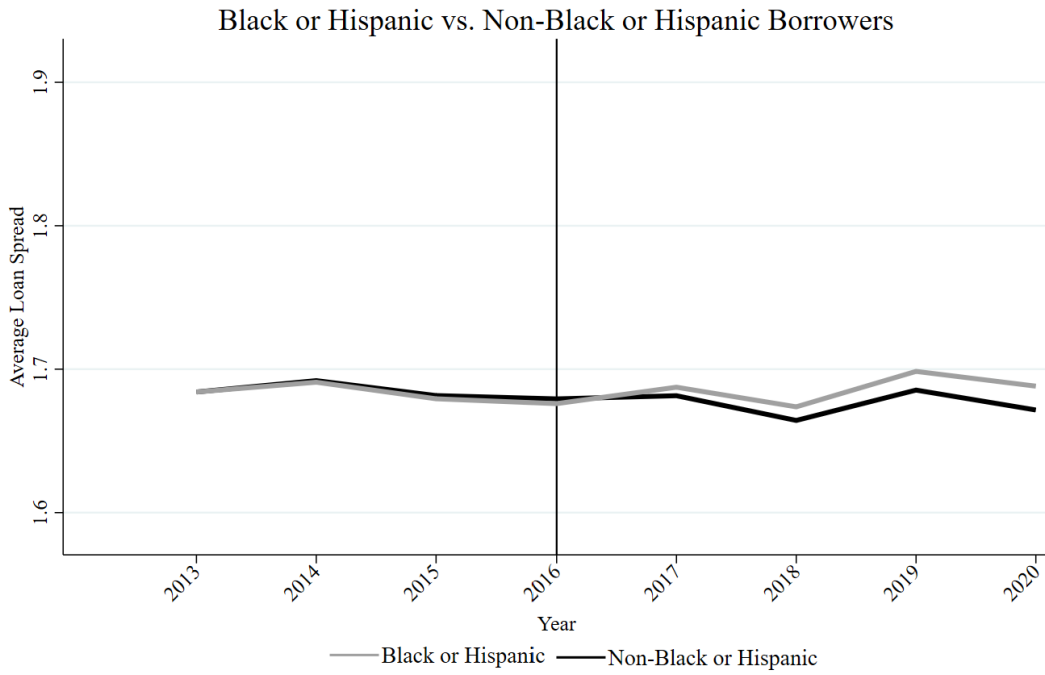


Table 1: Sample Selection

	Number of Banks	Number of Loan Applications
All originated mortgages between 2013 – 2020 from US institutions	8,044	69,455,243
Dropping observations with missing HMDA Data	(73)	(10,985,348)
Dropping non-depository institutions and credit unions	(3,280)	(32,622,391)
Dropping banks with missing control or identifier data	<u>(1,676)</u>	<u>(5,910,150)</u>
Main Sample	3,015	19,937,354
Dropping low-risk mortgages	<u>(537)</u>	<u>(19,101,244)</u>
High-Risk Subsample	2,478	836,110

Table 2: Summary Statistics**Panel A: Full sample of accepted loans**

<i>Variable</i>	Obs.	Mean	St. Dev.	Min	Max
<i>Loan Spread</i>	19,937,354	1.68	.61	1.5	19.84
<i>Low-Middle Income Tract</i>	19,937,354	.53	.5	0	1
<i>Black or Hispanic</i>	19,937,354	.05	.21	0	1
<i>Post</i>	19,937,354	.52	.5	0	1
<i>Bank Size</i>	19,937,354	9.62	1.95	4.87	11.17
<i>Bank ROA</i>	19,937,354	.01	.01	0	.05
<i>Bank Mortgage %</i>	19,937,354	.36	.17	.08	.92
<i>Education</i>	19,937,354	32.41	10.77	12.44	59.63
<i>County HPI</i>	19,937,354	160.36	38.7	94.46	272.82
<i>Applicant Income</i>	19,937,354	4.61	.74	3	6.74
<i>Lone Applicant</i>	19,937,354	.48	.5	0	1
<i>Male Applicant</i>	19,937,354	.72	.45	0	1
<i>County Poverty %</i>	19,937,354	12.64	4.59	4.4	25.8
<i>First Lien</i>	19,937,354	.93	.26	0	1
<i>Insured Loan</i>	19,937,354	.11	.31	0	1
<i>Tract Minority %</i>	19,937,354	2.93	.89	.96	4.57
<i>Tract Med. Fam. Income</i>	19,937,354	11.18	.21	10.73	11.72
<i>High Loan Spreads</i>	836,110	2.72	1.42	1.5	19.84

Panel B: Descriptive Statistics – Black or Hispanic / Non-Black or Hispanic Borrowers

<i>Variable</i>	Black or Hispanic			Non-Black or Hispanic		
	Obs.	Mean	St. Dev.	Obs.	Mean	St. Dev.
<i>Loan Spread</i>	905,462	1.67	.63	19,031,892	1.68	.61
<i>LMI Tract</i>	905,462	.67	.47	19,031,892	.53	.5
<i>Black or Hispanic</i>	905,462	1	0	19,031,892	0	0
<i>Post</i>	905,462	.51	.5	19,031,892	.52	.5
<i>Bank Size</i>	905,462	9.89	1.85	19,031,892	9.6	1.95
<i>Bank ROA</i>	905,462	.01	.01	19,031,892	.01	.01
<i>Bank Mortgage %</i>	905,462	.36	.16	19,031,892	.36	.17
<i>Education</i>	905,462	32.7	9.98	19,031,892	32.4	10.81
<i>County HPI</i>	905,462	158.81	39.91	19,031,892	160.44	38.65
<i>Applicant Income</i>	905,462	4.34	.65	19,031,892	4.62	.74
<i>Lone Applicant</i>	905,462	.68	.46	19,031,892	.47	.5
<i>Male Applicant</i>	905,462	.57	.5	19,031,892	.72	.45
<i>County Poverty %</i>	905,462	14.21	5.09	19,031,892	12.56	4.55
<i>First Lien</i>	905,462	.94	.23	19,031,892	.93	.26
<i>Insured Loan</i>	905,462	.26	.44	19,031,892	.1	.3
<i>Tract Min. %</i>	905,462	3.75	.71	19,031,892	2.89	.87
<i>Tract Med. Fam. Income</i>	905,462	11.18	.22	19,031,892	11.18	.21
<i>High Loan Spreads</i>	68,934	2.57	1.43	767,176	2.73	1.42

Panel C: Descriptive Statistics – Borrowers from LMI Tracts / Non-LMI Tracts

<i>Variable</i>	LMI Tracts			Non-LMI Tracts		
	Obs.	Mean	St. Dev.	Obs.	Mean	St. Dev.
<i>Loan Spread</i>	10,643,451	1.61	.5	9,293,903	1.76	.71
<i>LMI Tracts</i>	10,643,451	1	0	9,293,903	0	0
<i>Black or Hispanic</i>	10,643,451	.06	.23	9,293,903	.03	.18
<i>Post</i>	10,643,451	.25	.43	9,293,903	.82	.38
<i>Bank Size</i>	10,643,451	9.65	1.97	9,293,903	9.58	1.93
<i>Bank ROA</i>	10,643,451	.01	.01	9,293,903	.01	.01
<i>Bank Mortgage %</i>	10,643,451	.37	.17	9,293,903	.34	.18
<i>Education</i>	10,643,451	32.27	10.63	9,293,903	32.57	10.93
<i>County HPI</i>	10,643,451	150.4	34.32	9,293,903	171.77	40.26
<i>Applicant Income</i>	10,643,451	4.5	.71	9,293,903	4.72	.74
<i>Lone Applicant</i>	10,643,451	.5	.5	9,293,903	.45	.5
<i>Male Applicant</i>	10,643,451	.71	.45	9,293,903	.72	.45
<i>County Poverty %</i>	10,643,451	13.66	4.66	9,293,903	11.46	4.22
<i>First Lien</i>	10,643,451	.97	.18	9,293,903	.89	.32
<i>Insured Loan</i>	10,643,451	.13	.33	9,293,903	.08	.27
<i>Tract Min. %</i>	10,643,451	3.07	.89	9,293,903	2.77	.85
<i>Tract Med. Fam. Income</i>	10,643,451	11.15	.2	9,293,903	11.23	.22
<i>High-Spread Loans</i>	482,960	2.59	1.37	353,150	2.9	1.47

Table 3: Decreased Enforcement on Loan Spreads

This table reports OLS estimates for equation 1 with the outcome variable *Loan Spread* and the independent variable of interest *Post*Black or Hispanic* in columns (1) and (2) and *Post*LMI* in columns (3) and (4). *Post* is an indicator variable set to one starting in 2017. We define the rest of the variables in appendix A. We include year fixed effects in all columns, and we add bank fixed effects in columns (2) and (4). Standard errors are clustered at the bank level, and t-statistics are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels (two-tail) respectively. Intercepts are omitted. All continuous independent variables are winsorized at 1% and 99%.

	Dependent Variable: <i>Loan Spread</i>			
	(1)	(2)	(3)	(4)
<i>Black or Hispanic</i>	.015*** (.005)	.009*** (.003)	.019*** (.003)	.018*** (.003)
<i>LMI Tract</i>	.004 (.003)	.002* (.001)	-.007** (.004)	-.004*** (.001)
<i>Post * Black or Hispanic</i>	.013** (.006)	.016*** (.004)		
<i>Post * LMI</i>			.021*** (.004)	.015*** (.003)
<i>Bank Size</i>	-.014*** (.002)	-.031*** (.01)	-.014*** (.002)	-.031*** (.01)
<i>Bank ROA</i>	.658 (.904)	.302* (.179)	.627 (.902)	.303* (.18)
<i>Bank Mortgage Percentage</i>	-.05* (.03)	-.099*** (.031)	-.05* (.03)	-.098*** (.031)
<i>County Education</i>	-.001*** (0)	-.001*** (0)	-.001*** (0)	-.001*** (0)
<i>County Housing Price Index</i>	0* (0)	0 (0)	0 (0)	0 (0)
<i>County Poverty</i>	.002*** (0)	0*** (0)	.001*** (0)	0*** (0)
<i>Applicant Income</i>	-.021*** (.003)	-.019*** (.003)	-.02*** (.003)	-.019*** (.003)
<i>Lone Applicant</i>	.005*** (.002)	.001* (.001)	.004*** (.002)	.001* (.001)
<i>Male Applicant</i>	-.004** (.002)	-.004*** (.001)	-.004** (.002)	-.004*** (.001)
<i>First Lien</i>	-2.111*** (.041)	-2.057*** (.012)	-2.111*** (.041)	-2.057*** (.012)
<i>Insured Loan</i>	-.005 (.019)	-.006 (.006)	-.006 (.019)	-.006 (.006)
<i>Tract Minority Percentage</i>			.005*** (.002)	-.001 (.001)
<i>Tract Median Income</i>			-.015** (.006)	-.002 (.004)
Observations	19,937,354	19,937,336	19,937,354	19,937,336
R-squared	.783	.84	.783	.84
Year FE	YES	YES	YES	YES
Bank FE	NO	YES	NO	YES

Table 4: Within LMI Tracts

This table reports OLS estimates for equation (1) for a subsample of loans only in LMI tracts. The outcome variable is *Loan Spread* and in columns (1) and (2) the independent variable of interest is *Post*Black or Hispanic* and in columns (3) and (4) it is *Post*Poorest 25% LMI Tract*. *Post* is an indicator variable set to one starting in 2017. We define the rest of the variables in appendix A. Standard errors are clustered at the bank level, and t-statistics are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels (two-tail) respectively. Intercepts are omitted. All continuous independent variables are winsorized at 1% and 99%.

	Dependent Variable: <i>Loan Spread</i>			
	(1)	(2)	(3)	(4)
<i>Black or Hispanic</i>	.014*** (.004)	.008*** (.002)	.018*** (.004)	.015*** (.003)
<i>Poorest 25% LMI Tract</i>			-.007** (.003)	-.004** (.002)
<i>Post * Black or Hispanic</i>	.015** (.007)	.021*** (.005)		
<i>Post * Poorest 25% Tract</i>			.014*** (.004)	.009*** (.002)
<i>Bank Size</i>	-.017*** (.003)	-.022* (.011)	-.017*** (.003)	-.022* (.011)
<i>Bank ROA</i>	.435 (1.296)	.196 (.176)	.435 (1.296)	.194 (.175)
<i>Bank Mortgage Percentage</i>	-.041* (.024)	-.081*** (.03)	-.041* (.024)	-.081*** (.03)
<i>County Education</i>	-.001*** (0)	0*** (0)	-.001*** (0)	0*** (0)
<i>County Housing Price Index</i>	0 (0)	0 (0)	0 (0)	0 (0)
<i>County Poverty</i>	.001*** (0)	0* (0)	.001*** (0)	0* (0)
<i>Applicant Income</i>	-.016*** (.004)	-.016*** (.003)	-.016*** (.004)	-.016*** (.003)
<i>Lone Applicant</i>	.002* (.001)	0 (.001)	.002* (.001)	0 (.001)
<i>Male Applicant</i>	-.003 (.002)	-.003*** (.001)	-.003 (.002)	-.003*** (.001)
<i>First Lien</i>	-2.166*** (.076)	-2.07*** (.019)	-2.166*** (.076)	-2.07*** (.019)
<i>Insured Loan</i>	.007 (.023)	.002 (.006)	.007 (.023)	.002 (.006)
Observations	9,640,519	9,640,493	9,640,519	9,640,493
R-squared	.693	.786	.693	.786
Year FE	YES	YES	YES	YES
Bank FE	NO	YES	NO	YES

Table 5: Increased Enforcement 2007-2014

This table reports OLS estimates for equation (1) for the period 2007-2014. The outcome variable is *Loan Spread* and the variable of interest in columns (1) and (2) is *Post*Black or Hispanic* and in columns (3) and (4) is *Post*LMI*. *Post* is an indicator variable set to one starting in 2011. We define the rest of the variables in appendix A. Standard errors are clustered at the bank level and t-statistics are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels (two-tail) respectively. Intercepts are omitted. All continuous independent variables are winsorized at 1% and 99%.

	Dependent Variable: <i>Loan Spread</i>			
	(1)	(2)	(3)	(4)
<i>Black or Hispanic</i>	.124*** (.032)	.104*** (.025)	.057*** (.012)	.045*** (.009)
<i>LMI Tract</i>	-.015** (.006)	-.012*** (.004)	-.029** (.012)	-.019** (.008)
<i>Post * Black or Hispanic</i>	-.099*** (.031)	-.099*** (.027)		
<i>Post * LMI</i>			.018* (.01)	.011 (.008)
<i>Bank Size</i>	-.045*** (.003)	-.148*** (.051)	-.046*** (.003)	-.144*** (.051)
<i>Bank ROA</i>	1.436 (.932)	1.346** (.625)	1.378 (.94)	1.341** (.626)
<i>Bank Mortgage Percentage</i>	-.153*** (.044)	-.255* (.144)	-.148*** (.045)	-.248* (.144)
<i>County Education</i>	-.002*** (.001)	-.001*** (0)	-.002*** (0)	-.001*** (0)
<i>County Housing Price Index</i>	0 (0)	0 (0)	0* (0)	0* (0)
<i>County Poverty</i>	.006*** (.001)	.002*** (.001)	.003*** (.001)	.001*** (0)
<i>Applicant Income</i>	-.056*** (.013)	-.05*** (.011)	-.054*** (.012)	-.049*** (.011)
<i>Lone Applicant</i>	.008*** (.003)	.004 (.003)	.006** (.003)	.004 (.003)
<i>Male Applicant</i>	-.001 (.002)	-.005** (.002)	-.001 (.002)	-.006** (.002)
<i>First Lien</i>	-2.027*** (.032)	-2.003*** (.028)	-2.029*** (.031)	-2.003*** (.028)
<i>Insured Loan</i>	-.094*** (.023)	-.072*** (.017)	-.096*** (.024)	-.072*** (.017)
<i>Tract Minority Percentage</i>			.023*** (.006)	.008** (.003)
<i>Tract Median Income</i>			-.095*** (.028)	-.018 (.018)
Observations	19,257,553	19,257,541	19,257,553	19,257,541
R-squared	.465	.548	.466	.548
Year FE	YES	YES	YES	YES
Bank FE	NO	YES	NO	YES

Table 6: Cross-Sectional Tests

This table reports the results of cross-sectional tests. Panel A includes an indicator variable, *Charged*, set to 1 if the bank was charged for disparate lending by the DOJ or received a CFPB enforcement action between 2008 and 2016 and set to zero for banks that were not charged. In columns (1) and (3) *Charged=0*, and in columns (2) and (4) *Charged=1*. Panel B divides the banks by asset size, deeming a bank *LargeBank* if it has more than \$10 billion in Total Assets and *SmallBank* if it has less than \$10 billion in total assets. Panel C divides the sample by their outward ESG commitment, where *LowESG* is set to zero for bank-years where the bank is in the lowest quartile of Community ESG score and *HighESG* when the bank is in the top quartile of Community ESG scores. Columns (1) and (3) report results for *LowESG* banks and columns (2) and (4) report results for *HighESG* banks. In all panels the outcome variable is *Loan Spread*. The variable of interest is *Post*Black or Hispanic* in columns (1) and (2) and *Post*LMI* in columns (3) and (4). *Post* is an indicator variable set to one starting in 2017. Year fixed effects, bank fixed effects, and control variables are included in all columns. Standard errors are clustered at the bank level, and t-statistics are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels (two-tail) respectively. Intercepts are omitted.

Panel A: Previous Enforcement by DOJ or CFPB

	Dependent Variable: <i>Loan Spread</i>			
	<i>Charged=0</i> (1)	<i>Charged=1</i> (2)	<i>Charged=0</i> (3)	<i>Charged=1</i> (4)
<i>Black or Hispanic</i>	.016*** (.004)	.001 (.002)	.021*** (.004)	.011*** (.003)
<i>LMI Tract</i>	.001 (.002)	.009*** (.002)	-.004*** (.001)	-.002*** (.001)
<i>Post * Black or Hispanic</i>	.008 (.005)	.026*** (.008)		
<i>Post * LMI</i>			.01*** (.003)	.028*** (.004)
Observations	14,421,089	5,516,247	14,421,089	5,516,247
R-squared	.818	.923	.818	.923
Controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES
Wald Tests for coefficient differences:				
Charged <i>Post * Black or Hispanic/(LMI)</i> - Not-Charged <i>Post * Black or Hispanic/(LMI) = 0</i>	chi2(1) = 3.78*		chi2(1) = 14.19***	

Panel B: Bank Total Assets Above/Below \$10B

	Dependent Variable: <i>Loan Spread</i>			
	<i>SmallBank</i> (1)	<i>LargeBank</i> (2)	<i>SmallBank</i> (3)	<i>LargeBank</i> (4)
<i>Black or Hispanic</i>	.039*** (.007)	.003** (.001)	.033*** (.004)	.012*** (.002)
<i>LMI Tract</i>	-.004** (.002)	.008*** (.002)	-.003 (.003)	-.002*** (.001)
<i>Post * Black or Hispanic</i>	-.014 (.009)	.021*** (.005)		
<i>Post * LMI</i>			-.001 (.003)	.023*** (.004)
Observations	7,001,116	12,936,220	7,001,116	12,936,220
R-squared	.719	.918	.719	.918
Controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES
Wald Tests for coefficient differences:				
<i>LargeBank Post*Black or Hispanic (LMI) – SmallBank Post*Black or Hispanic (LMI) = 0</i>	chi2(1) = 11.52***		chi2(1) = 23.74***	

Panel C: ESG Scores

<i>Variables</i>	Dependent Variable: <i>Loan Spread</i>			
	<i>LowESG</i> (1)	<i>HighESG</i> (2)	<i>LowESG</i> (3)	<i>HighESG</i> (4)
<i>Black or Hispanic</i>	.005* (.002)	.002 (.003)	.014*** (.005)	.013* (.006)
<i>LMI Tract</i>	.005** (.002)	.011* (.005)	0 (.002)	-.005*** (.001)
<i>Post * Black or Hispanic</i>	.014* (.008)	.027** (.013)		
<i>Post * LMI</i>			.009*** (.003)	.037*** (.01)
Observations	3,140,945	3,019,719	3,140,945	3,019,719
R-squared	.902	.907	.902	.907
Controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES
Wald Tests for coefficient differences:				
<i>HighESG Post * Black or Hispanic/(LMI) – LowESG Black or Hispanic/(LMI) = 0</i>	chi2(1) = 1.46		chi2(1) = 0.10	

Table 7: Robustness Tests

This table reports OLS estimates for equation 1 for a subsample, alternative time period, and alternative outcome variable. Columns (1) and (2) include the subsample of loans to just high-risk borrowers as evidenced by loan spreads greater than 1.5%. Columns (3) and (4) report the results with an alternative time period, omitting 2017 and limiting the sample period to 2015-2019. In columns (1)-(4) the outcome variable is *Loan Spread*. Columns (5) and (6) report the results with *Loan Accepted* as the outcome variable and the sample includes all loan applications, both accepted and rejected. The variable of interest in columns (1), (3) and (5) is *Post*Black or Hispanic* and in columns (2), (4) and (6) is *Post*LMI*. *Post* is an indicator variable set to one starting in 2017. The rest of the variables are defined in appendix A. Standard errors are clustered at the bank level and t-statistics are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels (two-tail) respectively. Intercepts are omitted.

<i>Variables</i>	Dependent Variable: <i>Loan Spread</i>				DV: <i>Loan Accepted</i>	
	High-Risk Borrowers		Alt Sample Period		(5)	(6)
	(1)	(2)	(3)	(4)		
<i>Black or Hispanic</i>	.05*** (.018)	.078*** (.016)	.007** (.003)	.019*** (.003)	-.093*** (.01)	-.081*** (.006)
<i>LMI Tract</i>	-.001 (.008)	-.021** (.011)	.005*** (.002)	-.005*** (.001)	-.036*** (.004)	-.03*** (.004)
<i>Post * Black or Hispanic</i>	.035* (.019)		.023*** (.005)		.008 (.013)	
<i>Post * LMI</i>		.049*** (.014)		.023*** (.004)		-0.000 (.01)
Observations	835,962	835,962	9,358,971	9,358,971	30,687,131	30,685,645
R-squared	.665	.665	.875	.875	.111	.122
Controls	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES	YES	YES