AFRICAN AMERICAN REPRESENTATION ON BANK BOARDS AND MORTGAGE LOAN REJECTION RATES

Valentin Dimitrov[a], Jiayin Li[b] and Darius Palia[a] `

March 2025

Abstract

With growing social activism and changing regulations, stakeholders are urging boards to better reflect their firms' diverse customers. Prior research has shown that African American mortgage applicants experience higher rejection rates compared to White applicants. Given the critical role banks play in wealth accumulation and home ownership, we investigate whether the presence of African American directors on a bank's board affects mortgage rejection rates for African American applicants. We find that having African American board directors is endogenously determined. Specifically, banks with African American directors are generally larger, attract more African American mortgage applicants, have a higher percentage of female directors, rely less on deposits, hold fewer real estate loan assets, and are more likely to be headquartered in states with a greater fraction of African American executives. Importantly. we find no significant difference in rejection rates for African American mortgage applicants between banks with and without African American directors. We confirm this result using four econometric methods: OLS, matching, modified control function regressions, and African American director appointments. We find no observable link between African American board representation and either bank performance or value. Finally, the rejection rates for African American borrowers remain unchanged after George Floyd's murder in 2020, regardless of the presence of an African American on the board.

---

[a]Rutgers Business School and [b]University of International Business and Economics, respectively. We thank Yakov Amihud, Divya Anantharaman, Matt Baron, Marianne Bertrand, Neil Bhutta, Ivan Brick, Jennifer Carpenter, N.K. Chidambaran, Morris Davis, Vadim Elenev, Suresh Govindaraj, Harrison Hong, Prem C. Jain, Kose John, David Matsa, Oded Palmon, Thomas Philippon, Marshal Pitman (discussant), N. Prabhala, Rajesh Narayanan, Stijn Van Nieuwerburgh, Adi Sundaram, Heather Sarsons (discussant), Athena Tsouderou, Lukai Yang, David Yermack, Scott Yonkers, Adam Yore, and seminar participants at Baruch, Cornell, Florida State, John Hopkins, Rutgers, Miami, NYU Stern, NYC Real Estate Conference (Columbia), NYCU International Finance Conference (Taiwan), Peking, SWUFE, 2024 AAA meetings, and the 2024 Conference on Discrimination in the 21st Century (University of Chicago-Booth) for valuable comments and suggestions. Corresponding author: Darius Palia, dpalia@business.rutgers.edu.

"While the calls for more board diversity apply to all kinds of public companies, banks are arguably under the most pressure because they can play such a crucial role in closing the racial wealth gap…"

American Banker, December 7, 2020[1]

"Perhaps, because so much of economists' attention has been devoted to using field experiments to measure the extent of discrimination, there has been much less activity in designing creative ways to better document its consequences *or ways to undermine it*." (emphasis added)

Bertrand and Duflo, 2017, p. 382.

1. Introduction

As social activism intensifies and regulations evolve, corporate stakeholders are increasingly calling for boards to reflect the diversity of their customer base and actively address racial inequities. This paper examines whether the presence of African American directors on bank boards influences mortgage rejection rates for African American applicants. Additionally, we explore the factors associated with African American board representation and analyze whether banks with African American directors differ in operating performance, risk, or value. We focus on African American directors because there are too few directors from other minority groups in our sample for reliable inferences.

Significant economic inequalities persist between races in the United States. Median wealth (the amount held by a typical family) among White families was $285,000 in 2022, compared to $44,900 among Black families.[2] A large part of this difference can be attributed to considerably higher home ownership rates for Whites (74.2%), compared to African Americans (45.7%).[3] Given the importance of real estate, fair and equal access to housing has been a priority

[1] https://www.americanbanker.com/news/protests-and-mandates-push-banks-to-add-more-minorities-to-boards. See Section 2.1 of this paper for more references and details of initiatives to increase the diversity of boards.
[2] Data are from the 2022 Federal Reserve Survey of Consumer Finances, as summarized by Aladangady et al. (2023).
[3] U.S. Census Bureau Housing Vacancies and Homeownership Survey for 2024:Q3. Hubbard(1985), Campbell(2006), and Cochrane(2007) propose that real estate is an illiquid/nontraded asset that has a significant effect on a household's

among regulators.[4] Prior empirical studies have examined whether African Americans and Hispanics are systematically discriminated against by mortgage lenders (for example, Begley & Purnanandam, 2021; Black et al., 1978; Hubbard et al., 2011; King, 1980; Munnell et al., 1996; Palia et al., 2013; Quillian et al., 2020; Tootell, 1996). In a recent paired testing study by the newspaper *Newsday*, equally matched White and minority testers posing as homebuyers approached real estate agents in Long Island, New York (Ann Choi, 2019). In 49% of cases, African American testers appeared to receive disparate treatment compared to White testers. Using a more comprehensive sample across five cities, a HUD (2012) study finds similar disparate treatments between the races. Ross et al. (2008) find that African American testers in Chicago received less information and assistance from their mortgage lending institutions when compared to similar White borrowers. Martinez and Glantz (2018) analyze 31 million mortgage records in the period 2015 and 2016. They find that African Americans had less access to conventional mortgages than similar White applicants in 45 metropolitan areas.

In the context of the large and critical home mortgage market, this paper seeks to address the issue highlighted by Bertrand and Duflo (2017): what strategies might ensure minority borrowers receive the same access to mortgage loans as equivalent White borrowers? One potential strategy is increasing minority representation on bank boards. Minority board members, by virtue of their experiences, may provide insights that help banks better understand and address the

portfolio choice and asset returns. Empirical evidence of such effects has been found in Flavin and Yamashita(2002) and Palia, Qi and Wu(2014).

[4] The Fair Housing Act of 1968 prohibits discrimination based on race and is actively enforced by the Office of Fair Housing and Equal Opportunity in the U.S. Department of Housing and Urban Development (HUD). The Home Mortgage Disclosure Act (HMDA) of 1975 requires financial institutions to maintain, report, and publicly disclose loan-level information about mortgages. Public data are modified to protect applicant and borrower privacy, while providing regulators and researchers data that might shed light on discriminatory lending patterns. The Community Reinvestment Act (CRA) of 1977 encourages financial institutions to help meet the credit needs of the communities in which they do business, including low- and moderate-income neighborhoods.

specific financial constraints faced by minority borrowers. However, as a 2018 survey of Fortune 500 companies reveals, the composition of corporate boards remains predominantly White, with 80.5% of board seats held by Whites, compared to 11.1% by African Americans and 4.4% by Hispanics.[5]

In response to these statistics, the NASDAQ, SEC, state legislatures of California, Hawaii, Illinois, Massachusetts, Michigan, New York and Washington, Congress, pension funds (e.g., NYC pension fund), proxy advisors (e.g., Institutional Shareholder Services and Glass Lewis), and underwriters of companies going public (e.g., Goldman Sachs) have increasingly put pressure on corporate America to diversify its boards.[6] These institutions are encouraging, and more recently mandating, that companies appoint female directors and directors from underrepresented minority groups such as African Americans and Hispanics.

Having minority directors on bank boards could impact lending to minority borrowers in several ways. First, a diverse board may be more aware of inequalities in mortgage lending and the unique needs of minority borrowers. This awareness could lead to initiatives like hiring more minority loan officers (Frame et al., 2022) or increasing loan volume quotas for minority communities (Giacoletti et al., 2023), both of which have been shown to improve mortgage access.[7] Second, a more diverse board may signal a commitment to diversity, inclusion, and social justice, which could positively influence lending practices (Ferreira, 2010; Lamkin Broome & Krawiec, 2008).

[5] "Missing Pieces Report**:** The 2018 Board Diversity Census of Women and Minorities on Fortune 500 Boards", by Deloitte and the Alliance for Board Diversity.
[6] See Section 2.1 for details on these initiatives.
[7] See Section 2.2 for a detailed explanation of these papers.

However, diversity on the board might also be used to obscure discriminatory practices. In such cases, having minority directors could serve as a false signal that diverts attention from ongoing biases in lending (Brown et al., 2012). Finally, having minority directors on boards may have no significant effect on lending. Balogh and Yonker (2024) find that firm performance and risk remained unchanged after California mandated minority directors or in response to increased hiring following the Black Lives Matter movement.

This paper shifts the focus away from firm value to instead address a critical issue for U.S. consumers: ensuring equal access to residential mortgage loans across all races and ethnicities. While changes in firm performance may be of interest to investors, it is the equitable treatment of mortgage applicants that is of greater concern to legislators, regulators, and citizens. Mortgage access disparities directly influence homeownership rates, and subsequently wealth gaps, between minorities and Whites, which has made this issue a priority for policy and research.

Furthermore, given the complexity of bank holding companies' operations and the relatively small role that home lending plays in their overall operations, detecting any impact on broader firm metrics, such as value or risk, is unlikely. Thus, we instead focus on whether having an African American director on a bank's board affects mortgage rejection rates for African American applicants compared to White applicants. Regulators, legislators, and financial intermediaries need concrete evidence on the effectiveness of initiatives like board diversity mandates. This study aims to provide that evidence, focusing on whether these initiatives can make a meaningful difference in promoting equal access to mortgage loans.

We examine the following three related questions:

(1) What factors are associated with African American representation on bank boards? Prior research has shown that board composition for publicly traded firms is not random (see, for

e.g., Boone et al., 2007; Coles et al., 2008; Linck et al., 2008). We provide ex-ante testable hypotheses for bank characteristics that might explain whether a bank has an African American director. [8]

(2) Does African American representation on bank boards reduce mortgage rejection rates for African American applicants? To address this question, we employ four distinct econometric techniques. First, we use Ordinary Least Squares (OLS) to establish a baseline relationship under standard linear regression assumptions. Second, we apply matching models which relax the linearity assumptions in OLS. Third, we control for endogeneity with the modified controlled function regression method of Armstrong, Nicoletti, and Zhou (2022). This approach, originally suggested by Klein and Vella (2010), allows for identification without requiring the existence of an instrument that is exogeneous to bank and executive characteristics. Finally, we use an event study approach to examine changes in mortgage rejection rates following the appointment of an African American director on the board, thereby controlling for time-invariant bank characteristics. Each method contributes a unique perspective to our analysis, strengthening our ability to determine whether board diversity affects mortgage outcomes for African American applicants.[9]

(3) Does having an African American director on the board impact bank performance and risk? While our primary focus is on mortgage rejection rates, we also examine the implications for bank performance and risk for completeness and for comparison to prior research. This allows us

[8] We differ from these papers in two ways. One, we examine banks exclusively, whereas prior papers examine all publicly traded firms. Two, we also test two new hypotheses for why some banks choose to diversify their boards: the bank's culture towards diversity and the diversity of its customer base.

[9] Natural experiments are also used by Ahern and Ditmar (2012) in the context of gender diversity, and Bogan et al. (2024) and Balogh and Yonker (2024) in the context of board racial diversity.

to situate our findings within the broader context of board diversity literature, while emphasizing that the key metric for policymakers is equitable access to mortgages.

To answer these questions, we construct a sample of 143 bank holding companies for the years 2010 to 2023, wherein we can identify the racial identity of at least 75% of the directors on the board for each year.[10] This corresponds to 1,101 bank-year observations, 46.24 million mortgage loan applications, and 689 bank-year observations with at least one African American director.

Using this sample, we find the following results.

(1) African Americans make up 7.2% of bank board directors on average, and 62.6% of all bank-years have at least one African American director. Our analysis suggests that African American board representation is determined by bank-specific characteristics, indicating an endogenous process. Smaller banks (assets under $10 million) are less likely to have African American directors compared to medium and large banks, aligning with findings by Bogan et al. (2021) for publicly traded firms. Banks receiving more applications from census tracts with over 50% African American or Hispanic populations tend to have greater African American board representation, as do banks with more female directors, suggesting that a culture of diversity plays a role. We also find that banks relying less on deposits and holding fewer real estate loans are more likely to have African American board members. Furthermore, the labor supply of potential African American board candidates has a significant impact: banks headquartered in states with more African American executives are more likely to have African American directors, consistent with prior studies (Bogan et al., 2021; Giannetti & Zhao, 2019; Knyazeva et

[10] This threshold has also been used by Bogan et al. (2024) and Balogh and Yonker (2024).

al., 2013). Finally, having an African American director is not linked to differences in prior year performance or risk.

(2) We find no evidence that banks with African American directors have different mortgage rejection rates for African American applicants compared to banks without African American directors. This finding remains consistent across multiple econometric methods, including Ordinary Least Squares (OLS), Kernel and Nearest Neighbor matching models, a modified control function regression, and an event-study analysis of new African American board appointments.

(3) We find no significant relationship between African American board representation and subsequent bank performance metrics, including two-year returns, Tobin's Q, ROA, and non-performing loans, as well as bank risk measured by excess volatility. These findings are consistent with Balogh and Yonker (2024). Additionally, an event study on the appointment of new African American directors reveals no abnormal stock returns in the 10-day window surrounding the annual meeting date when African American directors are appointed. Taken together, these results indicate no evidence that diversifying the board impacts bank performance or risk.

Our findings suggest that appointing African American directors to a bank's board, on its own, is ineffective in addressing historical inequities in home mortgage lending. Importantly, nearly all the applications in our sample are for conforming loans, which are readily sold to Fannie Mae and Freddie Mac. This detail strengthens our results, as it implies that omitted loan characteristics are unlikely to be a major factor driving our findings.

The remainder of the paper is structured as follows: Section 2 reviews recent legislative efforts and literature on board diversity. Section 3 presents our hypotheses regarding factors

influencing African American board representation. Section 4 describes the data and sample, and Section 5 presents our empirical results. Finally, Section 6 concludes.

2. Board diversity and mortgage lending

2. 1 Recent initiatives to increase board diversity

Despite years of pressure from regulators and social activists, progress on appointing more minority directors on corporate boards remains slow (Adams & Ferreira, 2009; Field et al., 2020; Kim & Starks, 2016; Lemayian et al., 2020; Peterson et al., 2007). Faced with such slow progress, regulators, Congress, stock exchanges, and institutional investors are increasingly taking a more aggressive stance by mandating board diversity goals rather than simply encouraging them. In this section, we briefly review the recent initiatives to increase board diversity.

On December 1, 2020, NASDAQ proposed rules that would require all listed companies to disclose information regarding the diversity of their board.[11] Additionally, NASDAQ companies must appoint at least two diverse directors, one a person who self-identifies as female, and the other a person who self-identifies as either an underrepresented minority[12] or as lesbian, gay, bisexual, transgender or queer. All NASDAQ companies would have two years to appoint one diverse director. Companies on the NASDAQ Global Market and Global Select Market would need two diverse directors within four years. Companies on the NASDAQ Capital Market would need two diverse directors within five years. Failure to satisfy the requirement could result in delisting. The SEC recently released guidance on Items 401 and 407 of Regulation S-K, recommending that companies disclose director nominees' self-identified diversity

[11] https://www.nasdaq.com/press-release/nasdaq-to-advance-diversity-through-new-proposed-listing-requirements-2020-1

[12] Underrepresented minority refers to individuals belonging to any of the following racial or ethnic groups: African American, Hispanic, Alaska Native, Native American, or Pacific Islander.

characteristics—if they consent to such disclosure—along with any qualifications or attributes considered by the board or nominating committee when evaluating board membership.[13] The Improving Corporate Governance Through Diversity Act of 2021 (H.R. 1277), introduced in the U.S. House of Representatives on February 24, 2021, requires that companies disclose the racial, ethnic, and gender composition of their boards of directors and executive officers, as well as whether any members are veterans.[14] It also mandates disclosure of any plans to promote diversity within these groups. In addition, the Act requires the SEC to establish a Diversity Advisory Group, tasked with developing strategies to increase gender, racial, and ethnic diversity among board members.

Institutional Shareholder Services (ISS), the largest and most prominent proxy advisory firm, recently introduced rules for Russell 3000 or S&P 1500 companies that are effective for meetings on and after February 1, 2022.[15] ISS will generally recommend a vote "against" or "withhold" for the chair of the nominating committee (or other directors on a case-by-case basis) where the board has no apparent racially or ethnically diverse members. Mitigating factors include the presence of a racial and/or ethnic minority on the board at the preceding annual meeting and a commitment to appoint at least one racially and/or ethnically diverse board member. Similarly, starting January 1, 2021, Glass Lewis, another prominent proxy advisory firm, identified board diversity as a factor of concern. Going forward, Glass Lewis will assess board diversity based on race and ethnicity and a company's disclosure of such data in its proxy statement. Glass Lewis' guidelines indicate that its recommendations will comply with relevant board composition requirements under state law. Among investment banks, Goldman Sachs has pledged that, starting

[13] https://www.sec.gov/divisions/corpfin/guidance/regs-kinterp.htm#116-11
[14] https://www.congress.gov/bill/117th-congress/house-bill/1277
[15] https://www.mofo.com/resources/insights/210127-iss-glass-lewis-nasdaq-board-diversity.html

July 1, 2020, it will only underwrite companies going public if they have at least one diverse director, increasing to at least two diverse directors in 2021.[16]

States such as California, Hawaii, Illinois, Massachusetts, Michigan, New York, and Washington have proposed similar rules. For example, California passed a law in September 2020 that requires public companies headquartered in the state to have two or three directors from underrepresented groups by the end of 2022.[17] However, on April 1, 2022, the Los Angeles County Superior Court ruled that the law violates the state's constitution.[18]

Finally, pension funds are also starting to exert their influence towards more diverse boards. The Boardroom Accountability Project 2.0, led by NYC Comptroller Scott Stringer, aimed to increase board diversity and transparency among 151 public companies, most in the S&P 500. The project called for greater disclosure of board composition and promoted "refreshment" to introduce new perspectives. As a result, over 85 companies improved transparency, 59 diverse directors were elected, and 24 companies committed to considering women and people of color in future board searches. Building on this success, Comptroller Stringer launched Boardroom Accountability Project 3.0 in October 2019, advocating for all publicly traded companies to adopt a "Rooney Rule" policy, ensuring that women and people of color are considered for every board seat and CEO position.[19]

2.2 Literature on mortgage lending discrimination and board diversity

[16] https://www.goldmansachs.com/our-commitments/diversity-and-inclusion/launch-with-gs/pages/commitment-to-diversity.html.
[17] https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB979.
[18] https://www.reuters.com/world/us/la-court-rules-state-corporate-diversity-law-unconstitutional-2022-04-02/.
[19] https://comptroller.nyc.gov/newsroom/comptroller-stringer-nyc-funds-unprecedented-disclosure-of-corporate-boardroom-diversity-following-groundbreaking-campaign/.

This paper intersects with existing research in two broad areas, mortgage lending discrimination and board diversity. In this section, we briefly discuss the relevant research in each area.

The early research on mortgage discrimination consistently found that lenders rejected significantly more applications from minority borrowers compared to White borrowers (Black (Black et al., 1978; King, 1981; Schafer & Ladd, 1981). Later, Tootell (1996) suggested that part of this disparity could be attributed to differences in the geographical characteristics of neighborhoods, rather than outright discrimination.

Building on these findings, Munnell et al. (1996) analyzed loan applications in Boston using HMDA data, complemented by additional borrower information collected through a Federal Reserve Bank survey. They found that minority borrowers generally had less wealth, lower credit scores, and higher loan-to-value ratios than White borrowers. Even after accounting for these differences, minorities were still 8% more likely to have their applications rejected than White applicants.

Hubbard et al. (2011) examined mortgage applications in New Jersey and observed that, in the prime market, minority borrowers were more likely to be rejected than White borrowers, whereas in the subprime market, minorities were less likely to face rejection. Quillian et al. (2020) demonstrated that the gap in rejection rates between minority and White borrowers had only slightly narrowed from 1976 to 2016.

Begley and Purnanandam (2021) explored the effects of the Community Reinvestment Act (CRA, 1977) and found that it led to an increase in loans for low-to-moderate income areas and minority applicants, but also to a rise in complaints, suggesting a quantity-quality tradeoff for these borrowers due to CRA regulations.

More recently, Giacoletti et al. (2023) studied the impact of loan approval quotas on rejection rates throughout the month. They compared rejection rates at the beginning of the month, when quotas are not binding, to those at the end of the month, when quotas become binding and banks are more pressured to approve loans. Their hypothesis was that the personal judgment of loan officers should remain relatively stable throughout a month, regardless of quotas. They found that, in the first seven days of the month, African American borrowers were 20% more likely to be rejected compared to White borrowers. Even at the end of the month, when approval quotas were in effect and rejections typically decreased, African American borrowers still faced a 10% higher rejection rate than White borrowers

Several studies have shown that minority borrowers face lower rejection rates when minority loan officers are assigned to handle their applications (Fisman et al., 2017; Fisman et al., 2020; Frame et al., 2022). Jiang et al. (2021) investigate how political influence affects mortgage lending practices, particularly concerning minority applicants. The authors found that when a senator from the state where a bank is headquartered gains significant political power—such as becoming a committee chair—the bank's mortgage approval rates decline, with a more pronounced effect on minority applicants. This suggests that increased political influence may lead banks to adopt more conservative lending practices, disproportionately impacting minority borrowers.

There is also a literature on price-based discrimination that shows that minority borrowers are charged higher interest rates, points and fees on their home mortgages than White borrowers (Ambrose et al., 2021; Bartlett et al., 2022; Bayer et al., 2018; Bhutta & Hizmo, 2020; Black et al., 2003; Courchane & Nickerson, 1997; Ghent et al., 2014; Reid et al., 2017; Willen & Zhang, 2022).[20]

[20] We do not test for price-based discrimination in this paper because we lack detailed data on loan pricing.

There are three theories offered to explain discrimination. First, the taste-based discrimination theory of Becker (1957) posits that employers discriminate because of their explicit prejudice or animus towards minority candidates. Importantly, employers are willing to pay a financial penalty to avoid interacting with minorities. Second, Bertrand et al. (2005) allow for "implicit" discriminatory attitudes, which are unconscious mental associations toward agents of a certain group. Bordalo et al. (2016) model stereotypes based on Kahneman and Tversky (1972)'s representativeness heuristic. A decision maker assesses a target group by overweighting its representative type, defined as a type that occurs more frequently in that group when compared to a baseline reference group. Stereotypes might reflect real differences accurately, or exaggerate real differences, which, the authors argue, is why they contain a ''kernel of truth.'' In the case when a stereotype exaggerates differences and causes belief distortions, it leads to inaccurate depictions of the target group.

Third, the information-based or statistical discrimination theory of Arrow (1971) and Phelps (1972) posits that discrimination is profit-maximizing in a world with imperfect information. When information is limited and costly to gather, economic agents discriminate against minorities because of salient group characteristics. The information-based theory predicts that lenders are more likely to reject minorities because minorities have worse credit characteristics. As explained above, in the case when stereotypes accurately reflect credit differences between groups, Bordalo et al. (2016) model would be consistent with information-based discrimination.[21]

Minority directors could play a crucial role in improving lending outcomes for minorities due to their dual role as advisors and monitors of managers (Adams & Ferreira, 2007). In both roles, minority directors can advocate for more equitable lending practices.

[21] We do not test which discrimination theory best explain our results because their ex ante predictions are the same.

As advisors, minority directors help banks tailor lending activities to better meet the needs of minority borrowers. Research suggests that aligning leadership diversity with customer diversity can increase market share (Carter et al., 2003; Robinson & Dechant, 1997). Consistent with this idea, Carter et al. (2003) find a positive relationship between board diversity and firm value, while Giannetti and Zhao (2019) show that firms with more ancestral diversity achieve greater stock returns, receive more patents, and have higher stock return volatility. Similarly, Cook and Glass (2015) link racial and ethnic board diversity to increased product development and innovation.

Minority directors also bring unique perspectives and priorities shaped by their personal and professional experiences, including facing discrimination and bias (Collins, 1997; Smith & Nkomo, 2003). This allows them to advocate more effectively for underserved stakeholders, including those in minority communities (Post et al., 2011; Wang & Coffey, 1992). In mortgage lending, minority directors may champion policies that expand access to credit for underserved communities and influence CEO selection to reflect these priorities.

Appointing minority directors can also signal to stakeholders that the bank is committed to diversity, equity, and inclusion (Certo, 2003; Deutsch & Ross, 2003). (Lamkin Broome & Krawiec, 2008), in their 38 in-depth interviews with board directors, found that the most consistent view was that diverse boards signal to employees that the company values diversity. Supporting this signaling effect, Miller and del Carmen Triana (2009) show that firms with greater racial diversity on their boards receive higher reputation scores in Fortune's Corporate Reputation Survey, even after accounting for financial performance. In the context of mortgage lending, diverse boards may also signal to potential borrowers that the bank is fair and welcoming to minority applicants.

Alternatively, appointing a single minority director to a large board may allow banks to deflect criticism from social activists without making meaningful changes in how minority borrowers are treated. Some researchers view single minority directors as 'tokens' (Kanter, 1977), suggesting that being the only minority on the board can limit their effectiveness due to negative perceptions and stereotypes. If this is the case, we may find no significant impact—or even a negative impact—of board diversity on rejection rates for minority borrowers.

Why do some firms choose to hire African American directors while others do not? Rose and Bielby (2011) studied the boards of S&P 500 companies from 1980 to 2000 and found that larger, more visible companies, as well as those with a more diverse workforce, were more likely to appoint African American directors. Firms with larger boards, more interlocking directorships, or those headquartered in states with a higher percentage of African Americans were also more likely to include African American directors. Building on these findings, Glass and Cook (2017) confirm that the representation of African American and Hispanic directors correlates with the racial composition of the industry's labor force.

Research also suggests that local demographics influence board composition. Knyazeva et al. (2013) find that firms with access to a larger local director pool tend to have more independent boards, which ultimately leads to stronger firm performance. Similarly, Giannetti and Zhao (2019) find that board ancestry often mirrors the demographics of the region in which a company's headquarters is located.

However, barriers to leadership roles still exist for minority directors. Frame et al. (2022) document that minority directors are less likely to serve in key leadership roles—such as board chair, lead director, or chair of significant committees like audit, compensation, or governance—

despite often having stronger qualifications than their non-minority counterparts. Importantly, their findings show no evidence that minority directors are less effective than other directors.

In terms of skill diversity, Chidambaran et al. (2022) studied the retention and promotion of directors into key board positions, such as chairperson or head of major committees. They develop a measure of skill diversity, which compares each director's skillset to the median skills of other board members. Their results indicate that directors with greater skill diversity are more likely to be retained and promoted to key positions within the board.

Two recent studies closely related to this paper have examined board diversity and its consequences across all publicly traded U.S. firms. Bogan et al. (2021) analyze the effects of mandates, such as the California board diversity law and the Nasdaq board diversity rule, alongside social movements like the Black Lives Matter (BLM) movement, on the increase in minority directors. They report that prior to 2020, even without these mandates or movements, the percentage of new minority directors increased in larger firms, firms with greater minority labor availability, and those with more growth opportunities. After 2020, they document a 185% increase in African American director appointments following the BLM movement, along with a rise in appointments of other minority groups after the implementation of diversity mandates. The authors attribute these changes to factors such as search frictions, inattention, and racial bias in the director market.

Balogh and Yonker (2024) focused on the impact of the California board diversity law and the BLM movement on firm performance and risk, finding no significant relationship between these shocks to the director labor supply and changes in firm performance or risk metrics.

While these studies provide important insights into the broader effects of diversity mandates and social movements on public companies, our paper takes a different approach.

Specifically, we focus exclusively on banks and investigate a critical public policy question: whether having an African American director influences the mortgage rejection rates of African American applicants. By narrowing our focus to the banking sector and a key lending outcome, our study contributes to understanding the nuanced impacts of board diversity in a context where equitable board representation is particularly consequential.

3. Hypotheses on factors determining African American representation on bank boards

In this section, we develop hypotheses on factors determining African American representation on bank boards. Additionally, we describe proxy variable(s) used to capture each factor. Table 1 provides the definitions of variables along with their respective data sources.

*** *Table 1* ***

We estimate the following OLS regression model:

$$BoardAA_{i,t} = \alpha + \beta_1 * proxy\ variables_{i,t-1} + \beta_2 * control\ variables_{i,t-1} + \beta_3 * YearTrend_t + \eta_{i,t}\ , \quad (1)$$

where *i* refers to banks and *t* refers to years, respectively. β_1 is a vector of regression coefficients for bank characteristics that may explain the inclusion of an African American director on the board. β_2 is a vector of regression coefficients for control variables. $YearTrend_t$ measures the number of years between year t and year 2009 and is included to capture systematic differences in board diversity across time, while $\eta_{i,t}$ represents the error term.[22] All standard errors are clustered by bank to account for potential correlations between observations of the same bank. The dependent variable, *BoardAA*, is 1 if there is at least one African American director on the board,

[22] We are unable to use bank-level fixed effects models because we do not have a long enough panel data set.

and 0 otherwise. We use an indicator variable rather than the percentage of directors who are African American because the latter variable varies significantly with board size.

The different factors and their associated empirical proxies are explained below. To mitigate reverse causality concerns, all proxy and control variables in equation (1) are lagged one year.

Bank size: There are significant direct and indirect costs associated with finding and appointing a qualified board member (Bogan et al., 2021). Direct costs include hiring search firms like Korn Ferry International, Heidrick & Struggles, or Spencer Stuart to identify and shortlist candidates. Indirect costs involve the time and effort spent by management to conduct interviews and gather informal recommendations about candidates' skills. Larger banks have more resources to attract qualified African American executives to their boards, which is crucial given the scarcity of African American executives. Larger banks also face greater regulatory and political pressure to diversify their boards compared to smaller banks. As a result, larger banks are more likely to have an African American board member. To capture the effect of bank size, we use two dummy variables for bank size categories. *SmallSize* is set to one if a bank's total assets are under $10 million, otherwise it is zero. *MediumSize* is set to one if a bank's total assets are between $10 million and $100 million and is zero otherwise. Large banks, with assets over $100 million, are represented when both *SmallSize* and *MediumSize* are set to zero.

Board size: The opportunity cost of appointing an African American director is higher for smaller boards. For instance, a board with only six directors will face a higher burden in terms of managerial effort and time compared to a board with twelve members. To capture this effect, we use *BoardSize*, defined as the natural logarithm of the number of directors on the board.

Customer base: African American directors may make the bank more welcoming to minority communities, attracting higher-quality loan applicants. Minority customers might prefer a bank with visible African American representation, seeing it as more inclusive and understanding of their needs. This perception can be reinforced through marketing strategies, such as displaying images of African American board members or mentioning them in customer communications. To measure this potential effect, we include the variable *MMCTApply*, defined as the fraction of loan applications received from census tracts where the majority of residents are either African American or Hispanic (Majority Minority Census Tracts, MMCT).[23] Data are provided by the American Community Survey of the U.S. Census Bureau.

Culture of diversity: We hypothesize that banks with a culture of diversity are more likely to appoint an African American director. Prior research has shown that culture influences firm performance (Edmans 2011; Guiso et al. 2015; Graham et al. 2022; summarized by Gorton et al. 2022), and Fahlenbrach et al. (2012) specifically demonstrated its impact on bank performance. In our context, we use several proxy variables to capture a bank's culture regarding diversity. The first is *BoardFemale*, representing the proportion of female board members, as we expect boards with more women to be more inclined towards diversity. The second, *BoardOtherMinority*, measures the proportion of non-African American minority directors (e.g., Alaskan Native, Asian, Hispanic, Native American, Pacific Islander). Boards with more minority members are also expected to show a stronger commitment to diversity.

Following Hurtado and Sakong (2022) and Berger et al. (2023), we consider a bank's status as a Minority Depository Institution as another proxy for diversity. Minority owners may prefer

[23] Data by the Federal Reserve Bank of New York does not allow us to aggregate HMDA loan originator data at the bank holding company level prior to 2010. To maximize our sample size, we measured *MMCTApply* contemporaneously with *AfricanAmericanRR*.

more African American directors, but some may feel that their existing non-discriminatory policies make additional representation unnecessary. However, because there is only one Minority Depository Institution in our sample (International Bankshares Corporation), we cannot include this proxy in our model. Excluding this bank from our analysis does not alter our results.

Ownership by the three biggest index fund families: In 2017, the three biggest index fund families, Blackrock, State Street, and Vanguard, explicitly started campaigns to increase gender diversity on the board of directors of US firms. Gormley et al. (2023) find that these campaigns significantly boosted the representation of women on boards. Specifically, in 2019, American corporations had at least 2.5 times more women serving on their boards compared to the numbers in 2016. Accordingly, we create a variable, *Big3*, defined as the total ownership of these three big index fund families. We expect that banks with greater ownership by Blackrock, State Street, and Vanguard are more likely to include an African American director on the board.

Director labor supply: Research shows that the number of qualified African American executives influences whether company boards have African American representation (Giannetti and Zhao 2019; Glass and Cook 2017; Knyazeva et al. 2013; Rose and Bielby 2011). This supply constraint is even more significant in the banking industry due to its unique structure and regulatory environment. Each subsidiary within a bank holding company is separately chartered, requiring its own board (Adams and Mehran, 2012). Moreover, the National Banking Act mandates that the majority of bank directors must reside within the state or within 100 miles of the bank for at least a year prior to, and during their term.[24] Additionally, the Federal Reserve's Regulation L restricts directors from serving simultaneously on the boards of unaffiliated banks

[24] See 12 USC 72, "Qualifications," which outlines the role of banks and banking in the US Code.

within the same community or metropolitan area.[25] These residency and exclusivity requirements further reduce the pool of potential qualified African American directors, intensifying competition for qualified candidates. To quantify the local availability of qualified candidates, we use a measure called *AAExecutives*, defined as the ratio of African American executives to total executives in the state where the bank is headquartered. Data on the race of executives in the headquarter state is provided by the Equal Employment Opportunity Commission (EEOC).

Our analysis includes control variables for bank characteristics that may determine whether there is African American representation on the board. First, we account for a bank's past performance, measured by return on assets (*ROA*). Second, we control for two measures of bank risk. One measure is the bank's past annual excess stock return volatility (*IVOL*), calculated as the square root of 12 multiplied by the standard deviation of the bank's monthly excess stock returns, based on the Fama-French three-factor model. The other risk measure is the bank's leverage, measured as a bank's equity capital to total assets ratio (*Capital*). In addition, we include the ratio of deposits to total assets (*Deposits*). This measures the bank's reliance on deposits compared to other funding sources, such as repos or equity. To control for the bank's dependence on real estate loans, we also include the ratio of real estate loans to total assets (*RealEstateLoans*).[26]

We acknowledge that the supply of African American directors may be influenced by the wealth of the bank's home state. Greater state wealth could mean a larger pool of qualified African American executives. To account for this, we include two control variables. The first is the logarithm of per capita income (*logGDP*) for the bank's headquarters state, measured in 2017 US

[25] See §203 of the Depository Institutions Management Interlocks Act.

[26] We also include a bank's CRA rating, a dummy variable for possessing a CRA rating, and the percentage of mortgage applications from CRA-targeted areas in our analysis. None of these variables are statistically significant. These results are not reported but are available upon request from the authors.

dollars. The second, *IncDisparity*, captures the income gap between White and African American households, using data from the American Community Survey (ACS) of the U.S. Census Bureau.

4. Data and sample characteristics

4.1 Sample construction

Table 2 shows how we constructed our sample. We employ two data sources, Institutional Shareholder Services (ISS) and Institutional Shareholder Services Global (ISS Global), to obtain the board composition of U.S. financial companies. Both ISS and ISS Global provide data on the list of current directors as of the proxy date. The ISS dataset includes director composition information for companies listed in the S&P 1500 index, with coverage beginning in 2007. The ISS Global dataset provides a more comprehensive coverage but begins in 2013.

We create a unified dataset on board composition for 2010–2023 by combining ISS and ISS Global. First, we use ISS data for financial companies from 2010–2012. Next, we add financial companies covered by ISS Global from 2013–2023. For overlapping years, we append the sample with ISS banks not already covered by ISS Global. The sample period (2010–2023) matches the timeframe for which top-holder information is available from HMDA, allowing us to aggregate loan origination data at the bank holding company level.

*** Table 2 ***

Both ISS and ISS Global provide information on a director's race. Director race information is voluntary, and many firms do not report the race of their directors. ISS and ISS Global determine director race using several data sources. First, they seek company feedback and explicit public disclosure of a director's race. In the absence of such disclosure, ISS and ISS Global utilize other sources such as director biographies, company documents and websites of other companies or associations where an individual also serves as a director or as an employee. If a

clear determination still cannot be made, ISS and ISS Global validate a directors' race using photos in public filings (DEF 14A, 10-K). Following Bernile et al. (2018), we exclude companies with fewer than four directors on the board.

The Federal Reserve assigns a unique identification code, RSSD, to each financial organization that it oversees. We use the PERMCO-RSSD link table provided by the Federal Reserve Bank of New York (FRBNY) to link the ISS directors file data to the HMDA loan originator data. In our data, 1,675 bank-years do not have an RSSD code assigned by the Federal Reserve; these observations are dropped from our sample. We drop another 521 bank-years because the bank has no loans application records in the HMDA dataset. The resulting sample consists of 3,360 bank-year observations and 54,066,488 mortgage loan applications. We only consider mortgage loan applications for properties with one to four family units. These properties are more likely to be for personal use rather than commercial use. The sample excludes loan purchases because our focus is on the rejection rates at the loan origination stage.

We require that data is available on CRSP, Compustat, and the Federal Reserve's form Y9C, which reports consolidated financial statements for bank holding companies. This requirement further reduces the sample by 1,237 bank-year observations. Next, we require that banks have at least 1,000 loan applications in any given year. This requirement eliminates 482 bank-year observations and ensures that our results are not driven by small loan originators who may have only a handful of mortgage loan applications by minority borrowers. We restrict the sample to bank-years with at least 50 African American loan applications to ensure meaningful representation of African American borrowers. This requirement eliminates another 455 bank-year observations. We then further limit the sample to bank-years where at least 75% of board members' racial identities are known, following the heuristic used by Balogh and Yonkers (2024). The final

sample consists of 1,101 bank-year observations and 46.24 million mortgage loan applications from 2010 to 2023. The number of unique banks in our sample is 143.

4.2 Sample characteristics

Table 3 reports the summary statistics for the variables in the sample. We find that the rejection rates are significantly higher for African American borrowers. For African Americans, the average rejection rate is 49%, relative to 32.7% for White borrowers. The average rejection rate is also higher for Other Minority borrowers, at 41.7%. For board diversity, we find that 62.6% of all bank-years in our sample have at least one African American director. However, African American board members account for only 7.2% of all directors in the sample. Out of the 689 bank-year observations with at least one African American director, 434 have only one African American director, 225 have two, 25 have three, 5 have four.[27]

*** Table 3 ***

The data show that minority representation on bank boards is significantly lower than their proportion in the general population. One potential explanation is the scarcity of minority executives in the states where these banks are headquartered. For example, the average percentage of executives in these states who are African American is only 3.6%. Minorities also represent only a small fraction of all mortgage applications: African Americans account for 5.2% while other racial minority groups account for 11.8%. Along with high rejection rates, this suggests that minorities face substantial challenges in securing mortgage financing.

*** Table 4 ***

[27] Truist Financial Corp (2020-2023) and Fulton Financial Corp (2021) have the highest number of African American directors on their boards, each with four.

Table 4 provides a yearly summary of African American board representation, rejection rates of African American mortgage applicants, and the number of banks appointing African American directors. We find that more banks add African American board members from 2020 onwards compared to the period before 2020. This change coincides with the murder of George Floyd in May 2000 and the subsequent social movement against systemic racism. Our results align with trends observed in other studies covering both banks and non-bank companies (Balakrishnan et al. 2023; Balogh and Yonker 2024; Bogan et al. 2021; Pajuste et al. 2024). In the four years prior to 2020, an average of eight new African American directors were added annually, compared to an average of 20 in the four years from 2020. onward This increase does not appear to be due to a simple expansion of board size—prior to 2020, African Americans made up 6% of board members, which rose to 9.3% in the four years from 2020 onward. This suggests that the increase is in fact driven by greater diversity efforts rather than board expansion alone. Unfortunately, Figure 1 shows that the greater diversity of boards does not correspond to any discernable decrease in the rejection rate of African American mortgage applicants. Next section shows that this preliminary finding holds under rigorous econometric analysis.

*** Figure 1 ***

5. Empirical results

5.1 Factors determining African American representation on bank boards

The estimates for the coefficients in equation (1) are reported in Table 5. Columns (1) include the three variables that might be endogenously chosen by banks (*BoardSize*, *BoardFemale*, and *BoardOtherMinority*) whereas column (2) excludes them. Column (3) augments the model with the two state-level control variables *lnDisparity* and *LogSateGDP*.

*** Table 5 ***

We find that small banks are less likely to have an African American board member compared to large- and medium-sized banks, consistent with Bogan et al. (2021). Board size shows no correlation with the likelihood of having an African American director. However, boards with a higher proportion of female directors are more likely to include an African American director, indicating that a bank's culture affects racial diversity. Banks with more minority applicants (*MMCTApply*) are also more likely to have African American representation on their boards. Unlike campaigns by the big three index fund families (*Big3*) that increased female board representation, we find no significant effect of these institutions on the likelihood of having an African American director. The presence of African American executives in the bank's home state (*AAExecutives*) is positively correlated with board diversity, suggesting that limited local labor supply is a significant barrier to increased diversity. This finding is consistent with Knyazeva et al. (2013), Giannetti and Zhao (2019), and Bogan et al. (2021).

Among the control variables, we find that banks that rely less on deposits (*Deposits*) and have less of their assets in real estate loans (*RealEstateLoans*) are more likely to have African American board representation. Having an African American on the board is unrelated to the bank's prior year performance (*ROA*), risk (*IVOL*), and capital (C*apital*). The two state characteristic variables, *IncDisparity* and *LogStateGDP* are statistically significant. The positive and significant coefficient on *YearTrend* indicates an increase in African American board representation over time. In summary, the above results show that African American board representation is endogenously determined.

5.2 African American directors and rejection rates of African American mortgage applicants

5.2.1 Ordinary least squares estimation

As a starting point, we examine the rejection rate for African American borrowers using OLS with its standard linear regression assumptions. Specifically, we estimate the following model:

$$AfricanAmericanRR_{i,t} = \alpha + \beta_1 * BoardAA_{i,t-1} + \beta_2 * control\ variables_{i,t-1} + \beta_3 * YearTrend_t + \epsilon_{i,t} \quad (2)$$

The results are presented in Table 6. Columns (1) and (3) include only the key independent variable, *BoardAA*. Columns (2) and (4) add the full set of independent variables from equation (1). We examine rejection rates for year *t* (*AfricanAmericanRR*$_t$) as well as the average rejection rates over a three-year span (*AfricanAmericanRR*$_{t,t+2}$). This approach captures potential longer-term effects of having an African American director. We exclude the two state-level controls (*IncDisparity* and *LogStateGDP*) from these specifications for simplicity, as their inclusion does not meaningfully affect the reported coefficients. Across all models, we find no significant association between having an African American director and the rejection rate for African American mortgage applicants. These results suggests that board diversity by itself is insufficient to reduce existing racial biases in mortgage lending.

*** Table 6 ***

Several additional results may interest policymakers. Smaller banks reject African American mortgage applicants less often, although the effect is only marginally significant. Banks with more minority applicants (*MMCTApply)* have higher rejection rates for African American applicants in year *t* but not over the three-year span. Banks with a higher proportion of female board members, despite their focus on board diversity, have higher rejection rates for African American applicants. While this result may seem counterintuitive, the appointment of female directors is likely itself endogenous and influenced by various factors. Further research is needed to better understand these dynamics. We also find that the presence of other racial

minority directors on boards does not significantly affect rejection rates, suggesting that the impact of board diversity on lending practices may differ depending on the demographic group represented. The results for ownership by the big three index funds are opposite to our expectations. We find a marginally positive relationship between their ownership and rejection rates for African American applicants over the longer term. Banks that rely more on real estate loans have consistently lower rejection rates for African American applicants. There are no discernable effect of board size, bank profit, risk, deposits, and capital.

5.2.2 Matching models

We estimate two matching models, namely, Kernel matching and Nearest Neighbor matching. The goal is to closely match treatment and control observations on observable covariates so that the two are only different from each other with respect to having an African American director on the board. As is well known, matching does not require the standard linearity assumptions of OLS.

Before estimating the matching models, we first check whether the two distributions (for the treatment and control groups) have common support using the Min-Max condition. Common support requires that the probability of receiving treatment for each possible value is within the same interval as the probability of not receiving treatment. Using the specification of column (1) in Table 5, we find common support for 977 of the 1,101 bank-year observations in the sample.[28] The matching results are based on this restricted sample. We examine both the immediate and three-year rejection rates.

[28] The range of probability of having an African American board member in the control group based on the model in column (1) of Table 4 is 0.0113 to 0.9911, while for the treatment group the corresponding range is 0.1080 to 0.9999. Hence, using the Min-Max condition, we restrict our sample to observations with probability in the range of 0.1080 to 0.9911.

Table 7 reports these results. Consistent with the OLS findings in Table 6, we find no reliable association between African American board representation and rejection rates for African American mortgage applicants. The Kernel matching model provides weak evidence of higher rejection rates for African American applicants at banks with African American directors over the three-year period. However, the other three methods do not support this finding. Overall, the matching models suggest no significant relationship between African American board representation and mortgage rejection rates for African American applicants.

*** Table 7 ***

5.2.3 Modified control function regressions

We next use the modified control function approach, developed by Klein and Vella (2010) and applied by Armstrong et al. (2022) in their study of the effect of executive stock options on systemic risk.[29] The goal is to address potential endogeneity in the relationship between board diversity and lending outcomes. Specifically, we aim to understand how African American board representation affects the rejection rate of African American mortgage applicants, recognizing that both the board's diversity and the lending outcomes may be influenced by factors not directly observable in our data.

A standard regression approach could be misleading in our setting because unobserved characteristics affecting board diversity are likely correlated with unobserved characteristics affecting lending to African Americans. In fact, we find it impossible to identify an instrument that affects African American board representation but remains unrelated to banks' lending policies toward African American mortgage applicants. To circumvent this challenge, we employ a two-stage method known as the modified control function approach first proposed by Klein and Vella

[29] We thank Frank Zhou who kindly provided the R code for the estimation of the model in Armstrong et al. (2022).

(2010). This method explicitly accounts for unobservable characteristics by modeling the correlation between the error terms from equation (1) and equation (2).

The modified control function technique uses differences across distinct "markets" (such as different geographic areas or time periods) to isolate exogenous variation needed to identify the model. Crucially, each market varies in terms of the ratio of the variability of these error terms ($\sigma_{\varepsilon_{it}}/\sigma_{\eta_{it}}$). This variation, stemming from differences in local economic and regulatory conditions, provides the exogenous leverage to separate the causal impact of *AABoard* on *AfricanAmericanRR* from confounding unobservable factors.

Following Armstrong et al. (2022), we employ an iterative procedure to estimate these equations. Initially, we estimate equation (1) to obtain residuals capturing the unobserved factors affecting director choices. We then compute the variance of these residuals, $\sigma^2_{\eta_{it}}$, individually for each "market", reflecting distinct market conditions. These residuals then help construct a correction term for the second stage. Specifically, the correction term, $\frac{\sqrt{\sigma_{\varepsilon_{it}}}}{\sqrt{\sigma_{\eta_{it}}}}\eta_{it}$ explicitly accounts for correlated unobserved factors in Equation (2). We repeat this process, updating estimates of the variance ratios across markets, until convergence.

Defining markets involves balancing two objectives: ensuring enough distinct markets for identification, and having sufficient observations within each market to estimate the variance ratio accurately. We use two approaches to define markets. First, we treat each year separately, creating 14 distinct markets based on when African American bank directors are active,. Second, we divide the sample into markets by combining seven two-year periods with three equally-sized groups (terciles), determined by the fraction of executives that are African American in each bank's headquartered state (*AAExecutives*). This approach results in 21 distinct markets.

*** Table 8 ***

Table 8 presents results from the modified control function regressions. We report average coefficients based on 1,000 bootstrap samples, along with their 90% confidence intervals. Consistent with our earlier findings, we observe no significant relationship between African American board representation and mortgage rejection rates for African American applicants. These results hold for both market definitions, suggesting that endogeneity is unlikely to explain the absence of effects. Additionally, the coefficient on the correction term (ρ) is insignificant, indicating no meaningful endogeneity concerns in our analysis.

5.2.4 An event study of African American director appointments

The above results are based on panel data of loan rejection rates and board composition. It is still possible that we have not included some bank-specific and/or mortgage risk variables that might impact our results on loan rejection rates. We would like to estimate a bank-level fixed-effects model to control for such time-invariant risk factors and for the credit risk of the pool of mortgage applicants. However, we are constrained by the paucity of director race data currently available as the disclosure of such information is voluntary.

As an alternative approach, we explore how hiring an African American director to the bank's board affects African American loan rejection rates. This methodology assumes that the omitted variables are time-invariant. Within our sample, 90 banks appoint an African American director during the sample period. However, the number of banks analyzed varies each year based on data availability. Banks enter or exit the sample depending on whether they meet the criteria outlined in Section 4.1.

The results of this analysis are shown in Table 9. Panel A presents the outcomes for all banks that appoint an African American director in year 0. In the five years before year 0, the mean

mortgage rejection rate for African American borrowers is 48%. In the five years that follow (including year 0), the mean loan rejection rate for African American borrowers remains 48%. The difference between the pre- and post-rejection rates is statistically insignificant. Panel B focuses on banks that had no African American directors prior to appointing one in year 0. Consistent with the results in Panel A, we find the mean loan rejection rate for African American borrowers is 44% in the five years before year 0, and 46% in the five years that follow. The difference between the pre- and post-rejection rates is once again statistically insignificant.

*** Table 9 ***

The above results are based on differences in mean loan rejection rates. In Table 10, we perform a similar analysis in an OLS regression framework. Specifically, we create a dummy variable, *AfterBoardAA*, that equals one for years 0 to 4, and zero for years -5 to -1. The sample in column (1) includes all banks that appoint an African American director in year 0. The sample in column (2) includes banks that had no African American directors prior to appointing one in year 0. In both columns, the coefficient on *AfterBoardAA* is not significantly related to loan rejection rates. Once again, we find no reliable evidence that having an African American bank director increases access to mortgage loans for African American mortgage applicants.

*** Table 10 ***

5.3 African American director appointments and future bank performance

We next examine if appointing an African American director costly to banks' shareholders in terms of performance and risk? We first test whether the 90 banks that appoint an African American director experience different future performance and/or risks following the appointment, controlling for other bank, board, and loan pool characteristics. We examine measures of financial performance and risk for the two years following the appointment. We use four proxy variables

for bank performance, namely, buy and hold returns (*FutBHRet*), accounting profitability (*FutROA*), stock market value (*FutTobinQ*), and the nonperforming loans as a fraction of the bank's total assets (*FutBadLoans*). We measure risk as the excess stock return volatility from the three-factor Fama-French model (*FutIVOL*).

The results are reported in Table 11. *AfterBoardAA* equals one for years 0 to 4, and zero for years -5 to -1. The sample is the same as the sample in Table 10. We find no relationship between *BoardAA* and future financial bank performance and risk. The only significant result is for *FutIVOL*, where *BoardAA* is associated with 1.8% lower future stock return volatility. Overall, the results suggest that there is no significant impact of appointing African American directors on bank performance and risk. Importantly, there is no evidence than diversifying the board comes at expense of bank performance.

*** Table 11 ***

As an additional test, we conduct an event study around annual meeting dates associated with new African American director nominees to the board.[30] As mentioned in Section 5.2.4, we identify 90 such instances in our sample. The estimation window is 100 trading days with at least 70 observations with non-missing stock returns for each bank. This resulted in 82 bank-year observations. We then calculate excess stock returns for these 82 banks over a 10-day period surrounding the meeting date. The results are summarized in Figure 2. We find no excess stock returns during event period. Hence, these appointments do not affect shareholder wealth. These results are consistent with the panel results reported in Table 11, showing no difference in future bank performance and risk.

*** Figure 2 ***

[30] We thank Adi Sunderam for suggesting this test.

The finding that bank performance, risk, and value does not change with the appointment of an African American directors is hardly surprising. The percentage of mortgage applications received from African Americans in our sample is only 6.1% for banks with at least one African American director. According to data provided by Statista, residential mortgages account for 9.5% of total bank assets as of 2023 Q4 (end of our sample).[31] Even if we were to find a significant reduction in the rejection rates for African American mortgage applicants, the performance impact of these additional loans is likely too small to be detected in our tests.

5.4 African American board representations and rejection rates of African American mortgage applicants: The effect of the George Floyd social movement,

Our final analysis examines whether banks with African American board representation reacted differently in their mortgage lending to African American applicants following the murder of George Floyd and the subsequent sharp rise in awareness and social movements addressing systemic racism. Specifically, we investigate whether banks with at least one African American director experienced changes in rejection rates for African American mortgage applicants compared to banks without such representation. To do this, we augment equation (2) with an indicator variable marking the period after George Floyd's murder (*GFSM*) and an interaction between GFSM and *BoardAA.* Specifically, we estimate the following equation:

$$AfricanAmericanRR_{i,t} = \alpha + \beta_1 * BoardAA_{i,t-1} + \beta_2 * GFSM_t +$$

$$+\beta_3 * BoardAA_{i,t-1} * GFSM_t + \beta_4 * control\ variables_{i,t-1} + \beta_5 * YearTrend_t + \epsilon_{i,t} \quad (3)$$

[31] https://www.statista.com/statistics/1357194/loans-as-a-share-of-bank-assets-in-the-us-by-type/

The results are reported in Table 12, column (1). We find no significant difference in mortgage lending behavior between banks with and without African American directors following the event. Specifically, the interaction term between African American director representation and the post-George Floyd period indicator is statistically insignificant. Additionally, the main effect of the George Floyd indicator itself is also insignificant, suggesting that, overall, banks' rejection rates for African American mortgage applicants did not significantly change after the event. Our results are similar in column (2), where we control for any potential interaction of *GFSM* and the rest of the independent variables in the model.

*** Table 12 ***

These results indicate that, despite heightened social awareness and public discourse around systemic racism sparked by George Floyd's tragic death, banks did not significantly alter their lending policies towards African American mortgage applicants. Furthermore, having African American representation at the board level did not influence banks' responses to these societal shifts, at least as measured by the rejection rates analyzed here.

6. Conclusions

US stock exchanges, the SEC, state legislatures, pension funds and proxy advisors have recently intensified their efforts to increase board diversity in the United States. In this paper, we examine whether banks with African American board members are less likely to reject mortgage applications of African American mortgage applicants. Using four different methodologies, we find that having African American representation on a bank board is not significantly related to the rejection rates for African American mortgage applicants.

We also find that African American board representation is endogenously determined. Specifically, small banks are less likely to have African American board representation, whereas

banks with a customer base that has a majority of African American applicants, have a higher diversity culture and a higher labor supply are more likely to have African American board representation, Finally, we also find no evidence that having African American board representation is related to the bank's prior and future performance and risk.

Our results inform the debate surrounding the costs and benefits of having a racially diverse board. Most papers in the literature focus on the link between a racially diverse board and a firm's performance and risk. We focus on the link between a racially diverse bank board and equal access to mortgage credit for racially diverse minority applicants. Having an African American on a bank board does not equal access to mortgage credit. Considering the large disparities in home ownership between the races in the United States, understanding how to improve access to mortgage credit for minorities will continue to be an important area for future research.

References

Adams, R. B., & Ferreira, D. (2007). A theory of friendly boards. *The Journal of finance*, *62*(1), 217-250.

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, *94*(2), 291-309.

Adams, R. B., & Mehran, H. (2012). Bank board structure and performance: Evidence for large bank holding companies. *Journal of Financial Intermediation*, *21*(2), 243-267.

Ambrose, B. W., Conklin, J. N., & Lopez, L. A. (2021). Does borrower and broker race affect the cost of mortgage credit? *The Review of Financial Studies*, *34*(2), 790-826.

Ann Choi, K. H., Olivia Winslow and project editor Arthur Browne. (2019). Longisland Divided [Newspaper Article]. https://projects.newsday.com/long-island/real-estate-agents-investigation/ (Newsday)

Armstrong, C., Nicolleti, A., & Zhou, F.S. (2022). Executive stock options and systematic risk. *Journal of Financial Economics*, 146: 256-276.

Arrow, K. (1971). *Some Models of Racial Discrimination in the Labor Market*. RAND Corporation. https://www.rand.org/pubs/research_memoranda/RM6253.html

Baker, A. C., Larcker, D. F., & Wang, C. C. (2022). How much should we trust staggered difference-in-differences estimates? *Journal of Financial Economics*, *144*(2), 370-395.

Balakrishnan, K., Copat, R., De la Parra, D., & Ramesh, K. (2023). Racial diversity exposure and firm responses following the murder of George Floyd. *Journal of Accounting Research*, *61*(3), 737-804.

Balogh, A., & Yonker, S. E. (2024). Is there a business case for racial diversity on corporate boards? *Available at SSRN*.

Bartlett, R., Morse, A., Stanton, R., & Wallace, N. (2022). Consumer-lending discrimination in the FinTech era. *Journal of Financial Economics*, *143*(1), 30-56.

Bayer, P., Ferreira, F., & Ross, S. L. (2018). What drives racial and ethnic differences in high-cost mortgages? The role of high-risk lenders. *The Review of Financial Studies*, *31*(1), 175-205.

Becker, G. S. (1957). The economics of discrimination. (Chicago: University of Chicago Press)

Begley, T. A., & Purnanandam, A. (2021). Color and credit: Race, regulation, and the quality of financial services. *Journal of Financial Economics*, *141*(1), 48-65. https://doi.org/https://doi.org/10.1016/j.jfineco.2021.03.001

Berger, A. N., Feldman, M., Langford, W. S., & Roman, R. A. (2023). 'Let Us Put Our Moneys Together:'Minority-Owned Banks and Resilience to Crises. *Available at SSRN 4231594*.

Bernile, G., Bhagwat, V., & Yonker, S. (2018). Board diversity, firm risk, and corporate policies. *Journal of Financial Economics*, *127*(3), 588-612. https://doi.org/https://doi.org/10.1016/j.jfineco.2017.12.009

Bertrand, M., Chugh, D., & Mullainathan, S. (2005). Implicit discrimination. *American Economic Review*, *95*(2), 94-98.

Bertrand, M., & Duflo, E. (2017). Field experiments on discrimination. *Handbook of economic field experiments*, *1*, 309-393.

Bhutta, N., & Hizmo, A. (2020). Do Minorities Pay More for Mortgages? *The Review of Financial Studies*, *34*(2), 763-789. https://doi.org/10.1093/rfs/hhaa047

Black, H., Schweitzer, R. L., & Mandell, L. (1978). Discrimination in mortgage lending. *The American Economic Review*, *68*(2), 186-191.

Black, H. A., Boehm, T. P., & DeGennaro, R. P. (2003). Is there discrimination in mortgage pricing? The case of overages. *Journal of Banking & Finance*, *27*(6), 1139-1165.

Bogan, V. L., Potemkina, E., & Yonker, S. E. (2021). What Drives Racial Diversity on US Corporate Boards? *Available at SSRN 3952897*.

Boone, A. L., Field, L. C., Karpoff, J. M., & Raheja, C. G. (2007). The determinants of corporate board size and composition: An empirical analysis. *Journal of Financial Economics*, *85*(1), 66-101.

Bordalo, P., Coffman, K., Gennaioli, N., & Shleifer, A. (2016). Stereotypes. *The Quarterly Journal of Economics*, *131*(4), 1753-1794.

Brown, J. A., Buchholtz, A. K., Stewart, M. M., & Dennis, B. (2012). Board Diversity as a Camouflage Signal [Abstract]. *Academy of Management Annual Meeting Proceedings*, *2012*(1), 1-1. https://doi.org/10.5465/AMBPP.2012.285

Callaway, B., & Sant'Anna, P. H. (2021). Difference-in-differences with multiple time periods. *Journal of Econometrics*, *225*(2), 200-230.

Campbell, J. Y. (2006). Household finance. *The Journal of Finance*, *61*(4), 1553-1604.

Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. *Financial review*, *38*(1), 33-53.

Certo, S. T. (2003). Influencing initial public offering investors with prestige: Signaling with board structures. *Academy of ManagementReview*, *28*(3), 432-446.
Chidambaran, N. K., Liu, Y., & Prabhala, N. (2022). Director diversity and inclusion: At the table but in the game? *Financial Management*, *51*(1), 193-225.
Cochrane, A. (2007). Urban policy. *The Blackwell Encyclopedia of Sociology*.
Coles, J. L., Daniel, N. D., & Naveen, L. (2008). Boards: Does one size fit all? *Journal of Financial Economics*, *87*(2), 329-356.
Collins, S. M. (1997). Black mobility in white corporations: up the corporate ladder but out on a limb. *Social Problems*, *44*(1), 55-67.
Cook, A., & Glass, C. (2015). Diversity begets diversity? The effects of board composition on the appointment and success of women CEOs. *Social Science Research*, *53*, 137-147.
Courchane, M., & Nickerson, D. (1997). Discrimination resulting from overage practices. In *Discrimination in Financial Services: A Special Issue of the Journal of Financial Services Research* (pp. 133-151). Springer.
Deutsch, Y., & Ross, T. W. (2003). You are known by the directors you keep: Reputable directors as a signaling mechanism for young firms. *Management Science*, *49*(8), 1003-1017.
Edmans, A. (2011). Does the stock market fully value intangibles? Employee satisfaction and equity prices. *Journal of Financial Economics*, *101*(3), 621-640.
Fahlenbrach, R., Prilmeier, R., & Stulz, R. M. (2012). This time is the same: Using bank performance in 1998 to explain bank performance during the recent financial crisis. *The Journal of finance*, *67*(6), 2139-2185.
Ferreira, D. (2010). Board diversity. *Corporate governance: A synthesis of theory, research, and practice*, *8*, 225.
Field, L. C., Souther, M. E., & Yore, A. S. (2020). At the table but can not break through the glass ceiling: Board leadership positions elude diverse directors. *Journal of Financial Economics*, *137*(3), 787-814.
Fisman, R., Paravisini, D., & Vig, V. (2017). Cultural proximity and loan outcomes. *American Economic Review*, *107*(2), 457-492.
Fisman, R., Sarkar, A., Skrastins, J., & Vig, V. (2020). Experience of communal conflicts and intergroup lending. *Journal of Political Economy*, *128*(9), 3346-3375.
Flavin, M., & Yamashita, T. (2002). Owner-occupied housing and the composition of the household portfolio. *American Economic Review*, *92*(1), 345-362.
Frame, W. S., Huang, R., Mayer, E. J., & Sunderam, A. (2022). Minority loan officers and minorities' access to mortgage credit. *SMU Cox: Finance (Topic)*.
Ghent, A. C., Hernandez-Murillo, R., & Owyang, M. T. (2014). Differences in subprime loan pricing across races and neighborhoods. *Regional Science and Urban Economics*, *48*, 199-215.
Giacoletti, M., Heimer, R., Li, W., & Yu, E. G. (2023). Single Family REITs. *Available at SSRN 4698212*.
Giannetti, M., & Zhao, M. (2019). Board ancestral diversity and firm-performance volatility. *Journal of Financial and Quantitative Analysis*, *54*(3), 1117-1155.
Glass, C., & Cook, A. (2017). Appointment of racial/ethnic minority directors: Ethnic matching or visibility threat? *Social Science Research*, *61*, 1-10.
Gormley, T. A., Gupta, V. K., Matsa, D. A., Mortal, S. C., & Yang, L. (2023). The big three and board gender diversity: The effectiveness of shareholder voice. *Journal of Financial Economics*, *149*(2), 323-348.
Gorton, G. B., Grennan, J., & Zentefis, A. K. (2022). Corporate culture. *Annual Review of Financial Economics*, *14*, 535-561.
Graham, J. R., Grennan, J., Harvey, C. R., & Rajgopal, S. (2022). Corporate culture: Evidence from the field. *Journal of Financial Economics*, *146*(2), 552-593.
Guiso, L., Sapienza, P., & Zingales, L. (2015). The value of corporate culture. *Journal of Financial Economics*, *117*(1), 60-76.
Hubbard, R. G. (1985). Personal taxation, pension wealth, and portfolio composition. *The Review of Economics and Statistics*, 53-60.
Hubbard, R. G., Palia, D., & Yu, W. (2011). Analysis of discrimination in prime and subprime mortgage markets. *Available at SSRN 1975789*.
Hurtado, A., & Sakong, J. (2022). *The effect of minority bank ownership on minority credit*.
Jiang, E. X., Lee, Y., & Liu, W. S. (2021). Reducing racial disparities in consumer credit: the role of minority loan officers in the era of algorithmic underwriting. *USC Marshall School of Business Research Paper Sponsored by iORB*.
Kahneman, D., & Tversky, A. (1972). Subjective probability: A judgment of representativeness. *Cognitive psychology*, *3*(3), 430-454.
Kanter, R. M. (1977). *Men and women of the corporation*. Basic, New York.

Kim, D., & Starks, L. T. (2016). Gender diversity on corporate boards: Do women contribute unique skills? *American Economic Review*, *106*(5), 267-271.
King, A. T. (1980). Mortgage Lending, Social Responsibility, and Public Policy: Some Perspectives on HMDA and CRA. *Real Estate Economics*, *8*(1), 77-90.
King, A. T. (1981). *Discrimination in mortgage lending: A study of three cities* (Vol. 4). New York University, Graduate School of Business Administration, Salomon
Klein, R., & Vella, F., 2010. Estimating a class of triangular simultaneous equations models without exclusion restrictions. *Journal of Econometrics* 154(2): 154-164.
Knyazeva, A., Knyazeva, D., & Masulis, R. W. (2013). The supply of corporate directors and board independence. *The Review of Financial Studies*, *26*(6), 1561-1605.
Lamkin Broome, L., & Krawiec, K. D. (2008). Signaling through board diversity: Is anyone listening. *U. Cin. L. Rev.*, *77*, 431.
Lemayian, Z., Pownall, G., & Short, J. (2020). Why Are US Corporate Boards Under-diversified Among Genders and Races? *Available at SSRN 3567420*.
Linck, J. S., Netter, J. M., & Yang, T. (2008). The determinants of board structure. *Journal of Financial Economics*, *87*(2), 308-328.
Martinez, E., & Glantz, A. (2018). How reveal identified lending disparities in federal mortgage data. *The Center for Investigative Reporting*.
Miller, T., & del Carmen Triana, M. (2009). Demographic diversity in the boardroom: Mediators of the board diversity–firm performance relationship. *Journal of Management Studies*, *46*(5), 755-786.
Munnell, A. H., Tootell, G. M., Browne, L. E., & McEneaney, J. (1996). Mortgage lending in Boston: Interpreting HMDA data. *The American Economic Review*, 25-53.
Pajuste, A., Dzabarovs, M., & Madesovs, R. (2024). Boardroom racial diversity: Evidence from the Black Lives Matter protests. *Corporate Governance: An International Review*, *32*(2), 170-189.
Palia, D., Qi, Y., & Wu, Y. (2013). Research Centre for International Economics.
Palia, D., Qi, Y., & Wu, Y. (2014). Heterogeneous background risks and portfolio choice: Evidence from micro-level data. *Journal of Money, Credit and Banking*, *46*(8), 1687-1720.
Peterson, C. A., Philpot, J., & O'Shaughnessy, K. (2007). African-American Diversity in the Boardrooms of the US Fortune 500: director presence, expertise and committee membership. *Corporate Governance: An International Review*, *15*(4), 558-575.
Phelps, E. S. (1972). The statistical theory of racism and sexism. *The American Economic Review*, *62*(4), 659-661.
Post, C., Rahman, N., & Rubow, E. (2011). Green governance: Boards of directors' composition and environmental corporate social responsibility. *Business & Society*, *50*(1), 189-223.
Quillian, L., Lee, J. J., & Honoré, B. (2020). Racial Discrimination in the U.S. Housing and Mortgage Lending Markets: A Quantitative Review of Trends, 1976–2016. *Race and Social Problems*, *12*(1), 13-28. https://doi.org/10.1007/s12552-019-09276-x
Reid, C. K., Bocian, D., Li, W., & Quercia, R. G. (2017). Revisiting the subprime crisis: The dual mortgage market and mortgage defaults by race and ethnicity. *Journal of Urban Affairs*, *39*(4), 469-487.
Robinson, G., & Dechant, K. (1997). Building a business case for diversity. *Academy of Management Perspectives*, *11*(3), 21-31.
Rose, C. S., & Bielby, W. T. (2011). Race at the top: How companies shape the inclusion of African Americans on their boards in response to institutional pressures. *Social Science Research*, *40*(3), 841-859.
Ross, S. L., Turner, M. A., Godfrey, E., & Smith, R. R. (2008). Mortgage lending in Chicago and Los Angeles: A paired testing study of the pre-application process. *Journal of urban Economics*, *63*(3), 902-919.
Schafer, R., & Ladd, H. F. (1981). *Discrimination in mortgage lending*. mit Press.
Smith, E. L. B., & Nkomo, S. M. (2003). *Our separate ways: Black and white women and the struggle for professional identity*. Harvard Business Press.
Tootell, G. M. (1996). and Mortgage Defaults Uncover Taste~ Based Discrimination?
Wang, J., & Coffey, B. S. (1992). Board composition and corporate philanthropy. *Journal of business ethics*, *11*(10), 771-778.
Willen, P., & Zhang, D. (2022). *Testing for discrimination in menus*.

Figure 1: Rejection rates of African American mortgage applicants and African American Representation on Bank Boards

This figure shows *AfricanAmericanRR* and *BoardAAP* by year. *AfricanAmericanRR* and *BoardAAP* are defined in Table 1.

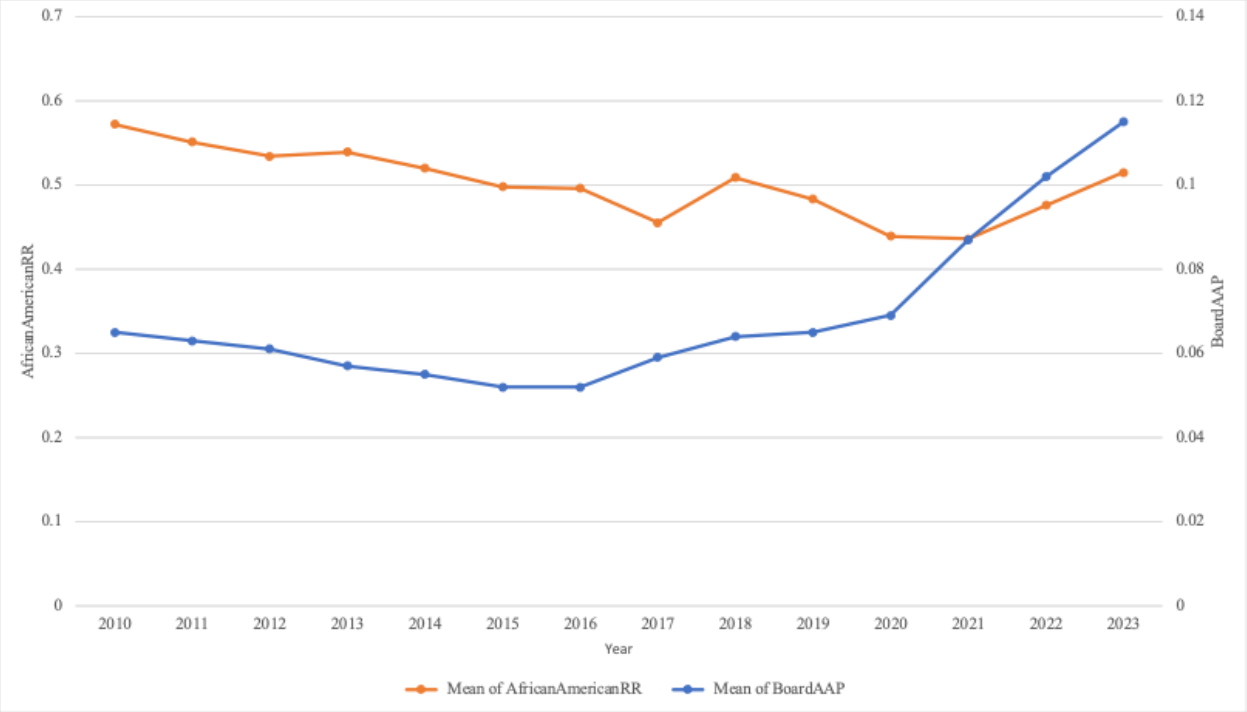


Figure 2: Cumulative abnormal return around the appointment of an African American director to the board

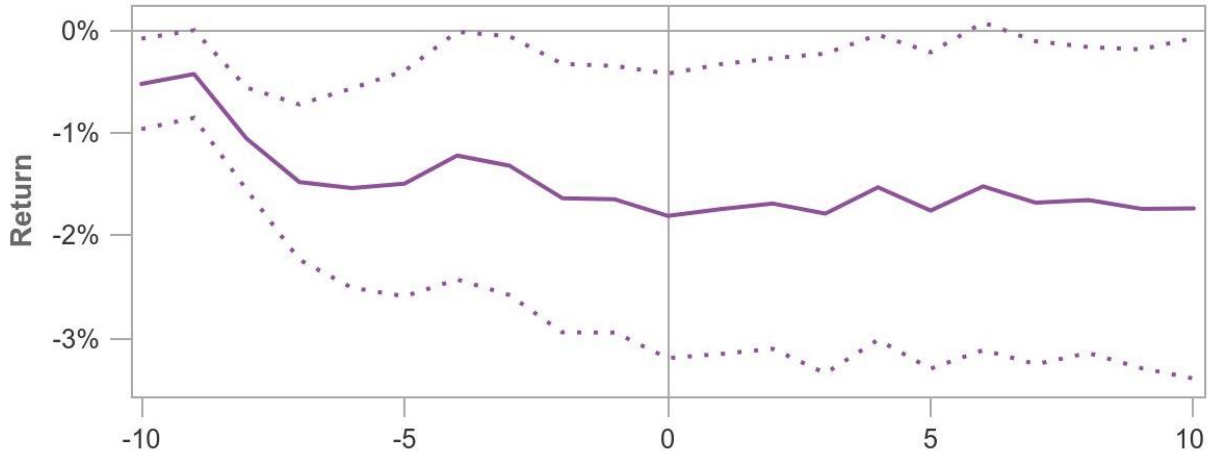


Table 1: Variable definitions and data sources

Variable name	Variable definition	Source*
AfricanAmericanRR	Percentage of mortgage applications from African American borrowers that are rejected year *t*.	HMDA
OtherMinorityRR	Percentage of mortgage applications from other minority borrowers (Alaskan Native/Asian/Hispanic/Native American/ Pacific Islander) that are rejected in year *t*.	HMDA
WhiteRR	Percentage of mortgage applications from White borrowers that are rejected in year *t*.	HMDA
BoardAA	Indicator variable that equals one when the board has at least one African American director, and zero otherwise, in year *t*.	ISS
BoardAAP	The percentage of African American directors on the board in year *t*.	ISS
SmallSize	Indicator variable that equals one when the total assets in year *t-1* is less than $10 million.	Compustat
MediumSize	Indicator variable that equals one when the total assets in year *t-1* is between $10 million and $100 million.	Compustat
BoardSize	Natural logarithm of the number of directors on the board in year *t-1*.	ISS
MMCTApply	Percentage of loan applications from majority minority census tracts (MMCT) in year *t*. A census tract is considered an MMCT if the population of African Americans/Hispanics is greater than or equal to 50% of the tract population.	ACS
BoardFemale	Percentage of female directors on the board in year *t-1*.	ISS
BoardOtherMinority	Percentage of directors from other minority groups on the board in year *t-1*.	ISS
Big3	Percentage share ownership of Blackrock, State Street, and Vanguard in year *t-1*.	ISS
AAExecutives	Ratio of African American executives to total executives in the state where bank is headquartered in year *t-1*.	EEOC
ROA	Ratio of net income to total assets in year *t-1*.	Compustat
IVOL	Sqrt(12) multiplied by the standard deviation of monthly excess stock returns. Excess stocks returns are defined using the Fama-French three-factor market model estimated over year *t-1*.	CRSP
Capital	Equity capital plus minority interest less portion of perpetual preferred stock and goodwill as a percent of adjusted risk-weighted assets in year *t-1*.	Compustat
Deposits	Ratio of deposits to total assets in year *t-1*.	Compustat

RealEstateLoans	Ratio of real estate loans to total assets in year *t-1*.	FR-Y9C
IncDisparity	Ratio of the median household income in the past 12 months of African American households to that of White households in the bank's headquartered state, measured in year *t-1*.	ACS
LogStateGDP	Natural logarithm of GDP per capita for the bank's headquarter state (2017 US dollars) in year *t-1*.	BEA
FutIVOL	Square root of 12 multiplied by the standard deviation of monthly excess stock returns. Excess return is defined using the Fama-French 3-factor market model estimated for years *t+1* and *t+2*.	CRSP
FutROA	Average net income for year *t+1* and *t+2* divided by total assets in year *t*.	Compustat
FutTobinQ	Average market value of equity plus book value of total liabilities for years *t+1* and *t+2* divided by total assets in year *t*.	Compustat
FutBadLoans	Average nonperforming loans for years *t+1* and *t+2* divided by total assets at year *t*.	FR-Y9C
FutBHRet	Buy and holding returns for years *t+1* and *t+2*	CRSP
YearTrend	The difference between year *t* and year 2009	Compustat

* Abbreviations: Home Mortgage Disclosure Act (HMDA); Institutional Shareholder Services (ISS); U.S. Equal Employment Opportunity Commission (EEOC); Consolidated Financial Statements for Holding Companies Report filed with the U.S. Federal Reserve (FR-Y9C); American Community Survey of the U.S. Census Bureau (ACS); Bureau of Economic Analysis (BEA); Center for Research in Security Prices at the University of Chicago (CRSP).

Table 2: Sample selection
The initial sample comprises of lending institutions incorporated in the U.S. from ISS and ISS Global for the years 2010 to 2023.

Sample Construction	# of bank-year observations	# of loan applications
Lending institutions (SIC 6000-6299) incorporated in the U.S. in ISS and ISS Global for the years 2010 to 2023	5,508	n/a
Dropped if no RSSD is assigned by the Federal Reserve	(1,675)	n/a
Dropped if no mortgage loan application records in HMDA	(521)	n/a
Bank-years with loan data	3,360	54,066,488
Dropped if other control variables are missing from CRSP, Compustat, Y9C	(1,237)	(4,062,904)
Dropped if the number of loan applications is less than 1,000	(482)	(238,104)
Resulting sample in bank-years	1,641	49,765,480
Bank-years with at least 50 African American loan applications	1,186	48,485,440
Bank-years with at least 75% of racial information for the board	1,101	46,239,528
Unique bank holding companies (BHCs)	143	n/m

Table 3: Summary statistics
The sample comprises of U.S. lending institutions with at least 75% director racial information in a given year (from ISS and ISS Global) and mortgage loan application data (from HMDA). Data are for the years 2010 to 2023. The sample consists of 1,101 bank-year observations. All variables are defined in Table 1.

Variable	Mean	p25	Median	p75	min	max	Std dev
AfricanAmericanRR	.49	.382	.488	.599	.094	.927	.146
OtherMinorityRR	.417	.317	.411	.508	.047	.917	.134
WhiteRR	.327	.256	.314	.39	.037	.884	.109
BoardAA	.626	0	1	1	0	1	.484
BoardAAP	.072	0	.077	.111	0	.3	.066
SmallSize	.422	0	0	1	0	1	.494
MediumSize	.417	0	0	1	0	1	.493
BoardSize	2.46	2.303	2.485	2.565	1.792	3.178	.234
MMCTApply%	.266	.052	.102	.204	0	1	.358
BoardFemale	.183	.111	.167	.25	0	.583	.099
BoardOtherMinority	.044	0	0	.077	0	.75	.09
Big3	.18	.133	.182	.231	.002	.367	.068
AAExecutives	.036	.024	.031	.04	0	.143	.021
ROA	.01	.008	.01	.012	-.052	.049	.006
IVOL	.145	.099	.129	.169	.043	.937	.077
Capital	12.672	10.94	12.2	13.56	7.01	38.9	2.768
Deposits	.76	.73	.787	.824	.079	.898	.107
RealEstateLoans	.436	.318	.448	.561	.001	.891	.173

Table 4: African American board representation, mortgage loan rejection rates for African American mortgage applicants, and African American director appointments, by year

This table displays average percentage of African American directors on the board (*BoardAAP*), the average rejection rate of African American mortgage applicants (*AfricanAmericanRR*) and African American director hires, by year.

Year	Bank Observations	*BoardAAP*	*AfricanAmericanRR*	African American director appointments
2010	29	0.065	0.572	1
2011	33	0.063	0.551	0
2012	43	0.061	0.534	2
2013	46	0.057	0.539	3
2014	73	0.055	0.52	4
2015	85	0.052	0.498	3
2016	88	0.052	0.496	4
2017	89	0.059	0.455	11
2018	94	0.064	0.509	8
2019	98	0.065	0.483	9
2020	108	0.069	0.439	15
2021	105	0.087	0.436	25
2022	111	0.102	0.476	26
2023	99	0.115	0.515	14

Table 5: Determinants of African American board representation

This table repots OLS regression estimates where the dependent variable is *BoardAA*. Numbers in parentheses are *t*-statistics based on standard errors clustered at the bank level. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. All variables are defined in Table 1.

Model	(1)	(2)	(3)
SmallSize	-0.242**	-0.311***	-0.243**
	(-2.407)	(-3.200)	(-2.426)
MediumSize	-0.057	-0.110	-0.057
	(-0.765)	(-1.458)	(-0.771)
BoardSize	0.159		0.159
	(1.328)		(1.327)
BoardFemale	0.692**		0.687**
	(2.344)		(2.325)
BoardOtherMinority	-0.251		-0.239
	(-0.605)		(-0.573)
MMCTApply%	0.180***	0.191***	0.178***
	(3.334)	(3.678)	(3.192)
Big3	-0.364	-0.235	-0.362
	(-0.775)	(-0.501)	(-0.767)
AAExecutives	4.723***	4.146***	4.702***
	(3.356)	(3.276)	(3.319)
ROA	-2.142	-3.366	-2.237
	(-0.772)	(-1.147)	(-0.785)
IVOL	0.249	0.244	0.255
	(1.434)	(1.365)	(1.451)
Capital	-0.016	-0.020*	-0.016
	(-1.613)	(-1.784)	(-1.561)
Deposits	-0.554*	-0.585*	-0.550*
	(-1.927)	(-1.969)	(-1.905)
RealEstateLoans	-0.394**	-0.448**	-0.388**
	(-2.253)	(-2.506)	(-2.154)
YearTrend	0.016*	0.022**	0.016*
	(1.817)	(2.531)	(1.812)
IncDisparity			-0.125
			(-0.313)
LogStateGDP			0.001
			(0.202)
Constant	0.736	1.349***	0.802
	(1.652)	(4.624)	(1.648)
Bank-year observations	1,101	1,101	1,101
Adj. R^2	0.308	0.289	0.308
Cluster by bank	Yes	Yes	Yes
$\beta_{MediumSize} - \beta_{SmallSize}$	0.185**	0.201***	0.186**
	(2.526)	(2.737)	(2.551)

Table 6: African American board representation and mortgage loan rejection rates for African American borrowers: OLS

This table presents OLS regressions where the dependent variable is *AfricanAmericanRR*. In column (1) and (2), $AfricanAmericanRR_t$ is the rejection rate in year *t*. In column (3) and (4), $AfricanAmericanRR_{t,t+2}$ is the average rejection rates over year *t*, *t*+1 and *t*+2. Numbers in parentheses are *t*-statistics based on standard errors clustered at the bank level. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. All variables are defined in Table 1.

	(1)	(2)	(3)	(4)
Model	$AfricanAmericanRR_t$		$AfricanAmericanRR_{t,t+2}$	
BoardAA	0.032	-0.025	0.031	-0.022
	(1.596)	(-1.381)	(1.466)	(-1.135)
SmallSize		-0.066*		-0.063
		(-1.822)		(-1.570)
MediumSize		-0.041		-0.037
		(-1.406)		(-1.213)
BoardSize		-0.036		-0.051
		(-0.927)		(-1.285)
BoardFemale		0.221**		0.241**
		(2.330)		(2.413)
BoardOtherMinority		-0.006		-0.049
		(-0.090)		(-0.602)
MMCTApply%		0.067***		0.082
		(4.906)		(0.524)
Big3		0.190		0.270*
		(1.330)		(1.668)
ROA		1.856		1.007
		(1.113)		(0.666)
IVOL		-0.111		-0.071
		(-1.584)		(-1.126)
Capital		-0.009*		-0.008*
		(-1.809)		(-1.722)
Deposits		0.088		0.126
		(0.832)		(1.223)
RealEstateLoans		-0.196**		-0.211**
		(-2.369)		(-2.431)
YearTrend	-0.007***	-0.015***	-0.009***	-0.012***
	(-3.491)	(-5.310)	(-3.668)	(-4.387)
Constant	0.531***	0.809***	0.536***	0.774***
	(24.686)	(4.918)	(23.647)	(4.555)
Bank-year observations	1,101	1,101	868	868
Adj. R^2	0.034	0.235	0.046	0.266
Cluster by bank	Yes	Yes	Yes	Yes

Table 7: African American board representation and mortgage loan rejection rates for African Americans: Matching methods

This table reports the average treatment effects on the treated group using two different matching methods: Kernel Matching and Nearest Neighbor Matching. In column (1) $AfricanAmericanRR_t$ is the rejection rate in year *t*. In column (2), $AfricanAmericanRR_{t,t+2}$ is the average rejection rates over year *t*, *t*+1 and *t*+2. The treatment group contains bank-years with at least one African American board director and the control group contains bank-years without any African American board directors. All matching is done with replacement using Model (1) in Table 5. Numbers in parentheses are *z*-statistics based on standard errors adjusted using 10,000 bootstrap replications. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. All variables are defined in Table 1.

		(1)	(2)
Matching method	Outcome variable	$AfricanAmericanRR_t$	$AfricanAmericanRR_{t,t+2}$
Kernel	Mean difference	0.013	0.023**
	(*z*-statistics)	(1.225)	(2.223)
Nearest Neighbor	Mean difference	0.005	0.002
	(*z*-statistics)	(0.524)	(0.225)
	Bank-year observations	977	791

Table 8: African American board representation and mortgage loan rejection rates for African Americans: Modified Control Function Approach

This table reports modified control function estimates from regressions of *AfricanAmericanRR* on *BoardAA*. Coefficients represent averages obtained from 1,000 bootstrap samples, with 90% confidence intervals provided in brackets. In column (1), matching markets are defined by calendar year. In column (2), matching markets are defined by interactions between seven two-year periods and three groups based on *AAExecutives*. These three groups are formed by sorting all bank-year observations evenly into thirds according to *AAExecutives*. We adopt the modified control function approach as implemented by Armstrong, Nicoletti, and Zhou (2022).

	(1)	(2)
Market definition	By Year (14 markets)	By two-year periods and three *AAExecutives* groups (21 markets)
BoardAA	-0.078	-0.002
	[-0.232, 0.068]	[-0.118, 0.113]
ρ	0.151	-0.071
	[-0.283, 0.549]	[-0.407, 0.282]
Controls	Yes	Yes
Bank-year observations	1,101	1,101
Adj. R^2	0.237	0.237

Table 9: Increase in African American board representation and mortgage loan rejection rates of African American borrowers: Univariate analysis

This table reports rejection rates for African American borrowers at banks appointing an African American director for the first time. Panel A reports rejection rates for all banks that appoint an African American board director in year 0. Panel B reports rejection rates for banks without any African American board directors that appoint an African American board director to the board in year 0. Numbers in parentheses are *t*-statistics based on *t*-test of the mean rejection rates in pre and post periods. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively.

Panel A: All banks that appoint an African American director to the board in year 0, full sample

Event year	-5	-4	-3	-2	-1		0	1	2	3	4
AfricanAmericanRR	0.50	0.49	0.49	0.47	0.46		0.47	0.48	0.50	0.50	0.50
Bank observations	45	54	59	72	80		90	76	61	48	36
Pre & post *AfricanAmericanRR*			0.48						0.48		
Post – pre *AfricanAmericanRR*						0.007					
(*t*-statistic for difference)						(0.57)					

Panel B: Banks without any African American directors that appoint an African American director to the board in year 0, full sample

Event year	-5	-4	-3	-2	-1		0	1	2	3	4
AfricanAmericanRR	0.46	0.45	0.44	0.45	0.42		0.44	0.44	0.49	0.48	0.50
Bank observations	30	37	38	47	53		60	50	37	27	16
Pre & post *AfricanAmericanRR*			0.44						0.46		
Post – pre *AfricanAmericanRR*						0.020					
(*t*-statistic for difference)						(1.43)					

Table 10: African American board appointments and mortgage loan rejection rates of African American borrowers: OLS

This tables shows OLS estimates for models with *AfricanAmericanRR* as the dependent variable. Column (1) includes all banks that appoint an African American board director. Column (2) includes banks without any African American board directors that appoint an African American board director for the first time. For each bank, data are for the period from year -5 to year +4 relative to the year of appointment (year 0). *AfterBoardAA* is an indicator variable that equals one for bank observations for years 0 to 4. The control variables are the same as in Table 6. Numbers in parentheses are *t*-statistics based on standard errors clustered at the bank level. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. All variables are defined in Table 1.

	(1)	(2)
Sample	All banks	Banks without African American directors
AfterBoardAA	-0.017	0.002
	(-0.897)	(0.087)
Controls	Yes	Yes
Bank-year observations	621	395
Adj. R^2	0.339	0.177
Cluster by bank	Yes	Yes

Table 11: African American board appointments and bank performance

This table report the estimates where the dependent variable is the metric identified in each column. This sample includes only banks that appoint an African American board director during the sample period For each bank, data are for the period from year -5 to year +4 relative to the year of appointment (year 0). *AfterBoardAA* is an indicator variable that equals one for bank observations for years 0 to 4. The control variables are the same as in Table 6. Numbers in parentheses are *t*-statistics based on standard errors clustered at the bank level. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. All variables are defined in Table 1.

	(1)	(2)	(3)	(4)	(5)
Model	*FutBHRet*	*FutROA*	*FutTobinQ*	*FutBadLoans*	*FutIVOL*
AfterBoardAA	-0.011	-0.002	-0.043	0.000	-0.018**
	(-0.399)	(-1.459)	(-1.401)	(0.531)	(-2.456)
Controls	Yes	Yes	Yes	Yes	Yes
Bank-year observations	506	506	490	502	506
Adj. R^2	0.156	0.166	0.152	0.375	0.247
Cluster by bank	Yes	Yes	Yes	Yes	Yes

Table 12: African American board representation and the George Floyd Social Movement (GFSM)
This tables shows OLS estimates for models with *AfricanAmericanRR* as the dependent variable. *GFSM* is an indicator variable that is set to one for the period after May 2000, and to zero otherwise. The control variables are the same as in Table 6. Numbers in parentheses are *t*-statistics based on standard errors clustered at the bank level. ***, **, and * correspond to 1%, 5%, and 10% significance levels, respectively. All variables are defined in Table 1.

	(1)	(2)
BoardAA	-0.026	0.028
	(-1.279)	(1.180)
*BoardAA*GFSM*	0.006	-0.044
	(0.226)	(-1.533)
GFSM	-0.005	0.085
	(-0.200)	(0.304)
Controls	Yes	Yes
Controls**GFSM*	No	Yes
Bank-year observations	1,101	1,101
Adj. R^2	0.235	0.109
Cluster by bank	Yes	Yes