FEDERAL RESERVE BANK
PHILADELPHIA

www.PhiladelphiaFed.org | @PhiladelphiaFed
March 2022

Home Mortgage Refinancing Disparities During the COVID-19 Pandemic:

Insights for Delaware, New Jersey, and Pennsylvania

Kyle DeMaria[1]

Key Findings

- Refinance mortgage originations grew remarkably in 2020 in Delaware, New Jersey, and Pennsylvania — vastly outpacing the growth in home purchase mortgages.
- However, the growth rate for refinance mortgages for Black and low- and moderate-income (LMI) borrowers was about half to three-quarters of the growth rate for borrowers overall.
- Refinance applications by Black and LMI applicants grew at a much slower rate than for applicants overall. The slower growth in applications, rather than changes in denial rates, drove the disparities observed in refinance originations for Black and LMI homeowners.
- The refinance mortgage denial rate for Black and LMI applicants was 7 to 14 percentage points greater than for applicants overall across the three states.
- While a high debt-to-income ratio was the most commonly cited reason that a refinance mortgage was denied to an LMI applicant, credit history was most commonly cited for Black applicants.
- Both financial institutions and organizations that support homeowners can help create a more equitable financial system by working with Black and LMI homeowners to address the barriers that prevent them from reaping the benefits of refinance mortgages.

Introduction

In this research brief, I use publicly available Home Mortgage Disclosure Act (HMDA) data to document the more than 200 percent growth in refinance mortgages in 2020 in Delaware, New Jersey, and Pennsylvania. I find that the growth in refinance mortgages to Black and low- and moderate-income (LMI) applicants was below the level of growth observed overall and show that the gap can best be explained by differences in application growth rates, rather than differences in denial rate trends. However, I also show that Black and LMI applicants were denied refinance mortgages at a higher rate than applicants overall. I find a statistically significant increase in the share of LMI applicants denied a refinance mortgage because of their debt-to-income (DTI) ratio and find that credit history was the most common reason a Black applicant was denied a refinance mortgage. These findings inform the public policy conversation around the role of refinance mortgage supply and accessibility in supporting homeowners during economically challenging times.

The jobs and earnings losses during and after the COVID-19-induced recession in spring 2020 imperiled the financial security of many homeowners in the U.S.[2] Not all homeowners experienced the same economic shock because COVID-19 impacted certain occupations and industries — and the workers employed within them — more than others (Cortes and Forsythe, 2020). For example, during the early months of the pandemic, the employment rates in Delaware, New Jersey, and Pennsylvania dropped the most for Black and Hispanic men and women (Wardrip, 2021) — particularly for those with a high school diploma or less. According to the Census Household Pulse Survey, by the end of 2020, about 12 percent of adults in owner-occupied households with a mortgage reported not being caught up on mortgage payments and about 15 percent had slight or no confidence they would be able to make next month's mortgage payment; these rates were higher for Black, Hispanic, and lower-income respondents (U.S. Census Bureau, 2021).

During the COVID-19 pandemic, the federal government implemented various relief efforts to help financially distressed homeowners weather jobs and earnings losses. The Coronavirus Aid, Relief, and Economic Security (CARES) Act established the guidelines by which federally backed mortgages could be eligible for forbearance, allowing homeowners to delay payments without the risk of foreclosure.[3] The CARES Act also established a foreclosure moratorium on properties with a federally backed mortgage; this protection remained in effect until July 2021 (National Housing Law Project, 2021).

Because of declining interest rates, another mechanism by which a homeowner could theoretically navigate this economically challenging period was through the use of a refinance mortgage. In a traditional rate-and-term refinance, a homeowner takes advantage of a lower interest rate environment to pay off the existing mortgage with a new mortgage that has a lower monthly payment. In a cash-out refinance, a homeowner taps into equity that has accumulated in the home from past mortgage payments or home value appreciation; the homeowner receives a cash payment for a portion of that equity, and the cash payment is folded into a new mortgage with a higher balance. The homeowner may incur a larger monthly payment but can use the cash payment for any desired purpose. In this article, I distinguish between non-cash-out and cash-out refinance mortgages.

> "These findings inform the public policy conversation around the role of refinance mortgage supply and accessibility in supporting homeowners during economically challenging times."

According to the Freddie Mac Primary Mortgage Market Survey, the average interest rate on a 30-year fixed rate mortgage reached historical lows during the pandemic and fell to 2.65 percent in January 2021 before climbing again, making the preceding period an ideal time to refinance a mortgage (Freddie Mac, n.d.). Freddie Mac estimated that two-fifths (40 percent) of borrowers with a 30-year fixed-rate mortgage that it guarantees could have seen savings of at least $100 per month had they refinanced their mortgage based on conditions in spring 2021. An even greater share of Black (49 percent) and Hispanic (47 percent) borrowers could have realized the same savings from pursuing a refinance (Khater, McManus, and Liu, 2021).

However, disparities exist by race, ethnicity, and income in who refinances their mortgage and which groups receive the most benefit. Between 2005 and 2015, a significantly smaller share of Black and Hispanic borrowers refinanced their mortgage compared with White borrowers (Gerardi, Willen, and Zhang, 2020), and the gap widened during the COVID-19 pandemic (Gerardi, Lambie-Hanson, and Willen, 2021). As a result, Gerardi, Lambie-Hanson, and Willen (2021) estimate that Black households received only 3.7 percent of an estimated $5.3 billion in aggregate savings in monthly payments from refinancing activity between January and October 2020. Likewise, in a national study of refinance activity, Agarwal et al. (2021) find that higher-income borrowers are more likely to refinance their mortgage than lower-income borrowers, and this difference grew during the pandemic.

In studies of disparities of refinance rates, controlling for the creditworthiness of borrowers and loan characteristics reduces the size of the disparities between groups, but significant gaps remain (Gerardi, Willen, and Zhang, 2020; Gerardi, Lambie-Hanson, and Willen, 2021). Another potential cause for these disparities is the underrepresentation of lower-income homeowners in refinance application pools, which might be explained in part by marketing choices by financial institutions, limited financial literacy among borrowers, and mortgage forbearance programs available during the pandemic (Agarwal et al., 2021). Regarding the last, traditionally, a homeowner had to wait 12 months after exiting forbearance before being eligible for a refinance mortgage; new rules issued in late spring 2020, by Fannie Mae and Freddie Mac for example, still require three payments before becoming eligible (Lane, 2020).

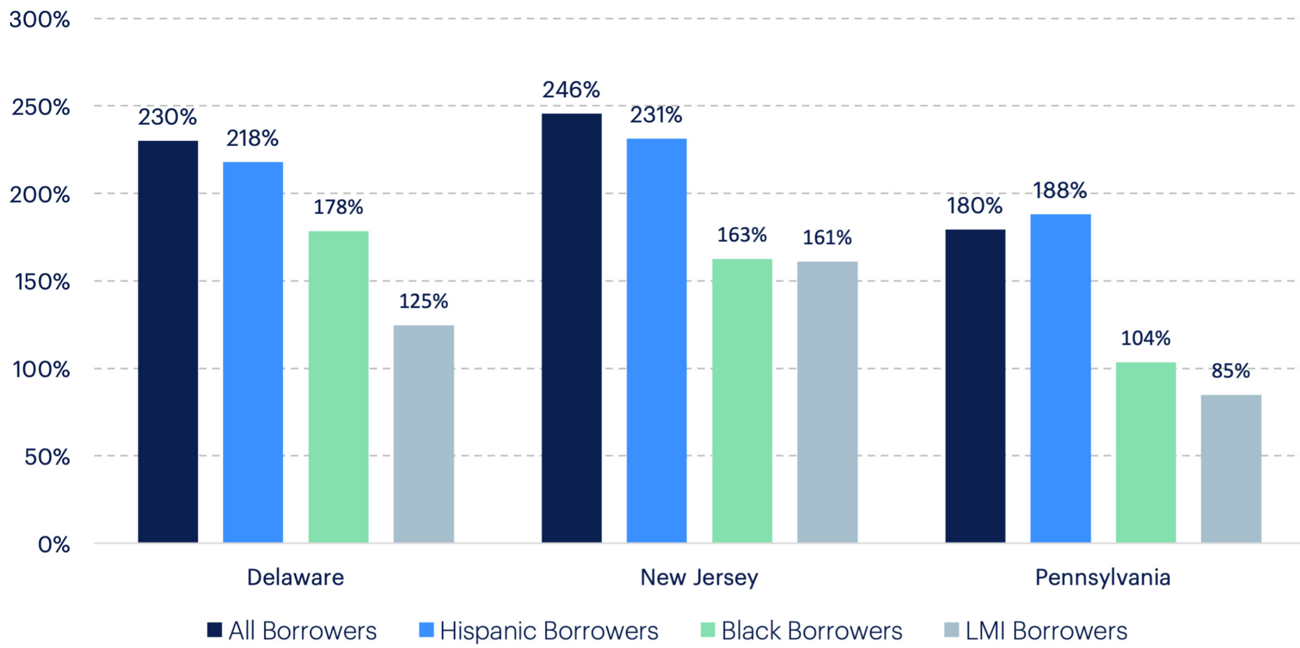
To explore trends in refinance mortgages during the pandemic, I use publicly available HMDA data for 2018 to 2020. I compare refinance mortgage applications in 2020 with applications in the preceding two years in order to measure change from a robust baseline. I examine trends for LMI, non-Hispanic Black, and Hispanic applicants and make comparisons with applicants overall.[4] Following the convention used in HMDA reporting, I define LMI applicants as having income below 80 percent of area median family income. The precise income threshold varies by place and ranges from roughly $53,000 in the Vineland-Bridgeton, NJ metropolitan area to roughly $96,000 in the Montgomery County-Bucks County-Chester County, PA metropolitan division. I limit my analysis to first-lien refinance mortgages for one-to-four-unit, owner-occupied properties in Delaware, New Jersey, and Pennsylvania. I refer to the three states collectively as the tristate area.

Growth in Refinance Mortgages in 2020

Refinance mortgages grew remarkably in the tristate area in 2020 — growth driven by non-cash-out refinance loans (**Figure 1**). For context, there was double-digit growth in home purchase mortgages in two of the three states, but there was triple-digit growth in refinance mortgages.[5] In New Jersey, the number of refinance mortgages originated in 2020 was 246 percent greater than the number originated on average over the preceding two

Figure 1

Percent Growth in Refinance Mortgage Originations by Borrower Characteristics (2020 vs. 2018–19 Average)



Sources: *Author's calculations using Home Mortgage Disclosure Act data (2018–20) and the American Community Survey 5-year estimates (2008–12 and 2015–19).*

years. The growth in refinance mortgages was similarly high in Delaware (230 percent) and somewhat less in Pennsylvania (180 percent). These growth rates translated into approximately 17,000 additional refinance originations in Delaware, 143,000 in New Jersey, and 144,000 in Pennsylvania relative to the average number of originations over the preceding two years (**Appendix**). Approximately 88 percent of the growth in refinance mortgages was attributable to non-cash-out refinance loans.

The growth in refinance mortgages for Hispanic borrowers was about the same as for borrowers overall and even exceeded overall growth in Pennsylvania. However, the growth rate in refinance mortgages to Black and LMI borrowers was about half to three-quarters that observed for borrowers overall. Because the refinance origination growth gap for Hispanic borrowers is less pronounced, in the next section, I focus on explaining the gap for Black and LMI borrowers.

Examining Uneven Growth in Refinance Mortgages for Black and LMI Borrowers

For a given group of homeowners, the number of originated refinance mortgages is a function of two factors: the number of submitted refinance applications and the denial rate. So why did growth in refinance originations for Black and LMI homeowners lag overall growth? There are two potential explanations. First, the growth in refinance applications submitted by Black and LMI homeowners over this period could have been below the growth observed for non-Black or higher-income homeowners. Second, differential changes in the denial rate for these groups of homeowners could have suppressed the number of refinance originations for Black and LMI homeowners relative to non-Black and higher-income homeowners. I explore these possibilities in Figures 2 and 3.

Differences in application growth rates provide strong support for the first explanation — that the growth in refinance mortgage originations for Black and LMI applicants was suppressed by relatively lower growth in applications by these groups. **Figure 2** presents the growth in applications in 2020 for Black and LMI applicants and applicants overall compared with the average across the preceding two years. In Pennsylvania, the growth in refinance applications for Black and LMI homeowners was less than half the growth for applicants overall; in Delaware and New Jersey, it was about half or slightly more.

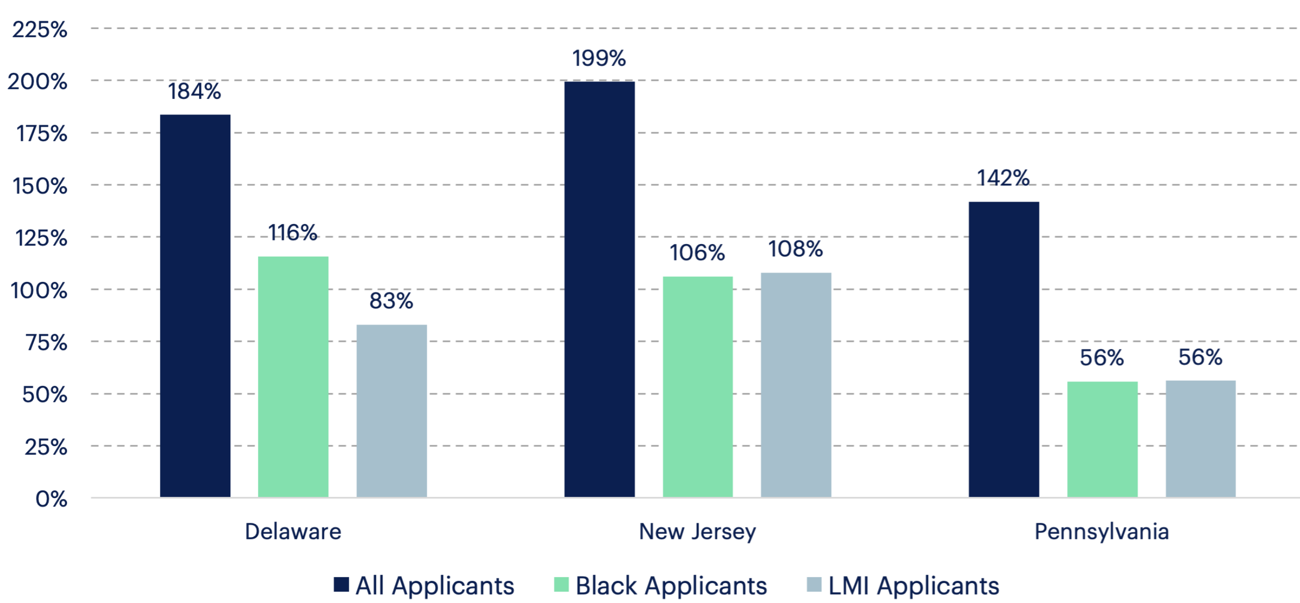
While application growth rates lagged for Black and LMI borrowers, the denial rate for Black and LMI applicants declined by more on a percentage-point basis than it did for all applicants (**Figure 3**). During the pandemic, the denial rate for applicants overall declined by a range of 11 to 13 percentage points across the three states, from around 27 percent in 2018–19 to around 15 percent in 2020. Both before and during the pandemic, Black and LMI applicants experienced consistently higher denial rates. In 2020 across the three states, the denial rate for Black applicants declined by a range of 16 to 19 percentage points and the denial rate for LMI applicants declined by a range of 11 to 15 percentage points. These figures represent a raw decline greater than that for applicants overall but proportionally similar. As a result, the greater decline in denial rates for Black and LMI applicants served to narrow the Black and LMI refinance origination growth gap. When taken together, the results from Figures 2 and 3 suggest that the slower growth in applications by Black and LMI homeowners, rather than changes in denial rates, drove the disparities observed in refinance originations for Black and LMI homeowners.

Refinance Mortgage Denial Reasons for Black and LMI Applicants

Even with an 11- to 19-percentage-point improvement in the denial rate for Black and LMI refinance applicants, these applicants still experienced denial rates 7 to 14 percentage points greater than applicants overall in 2020.

Figure 2

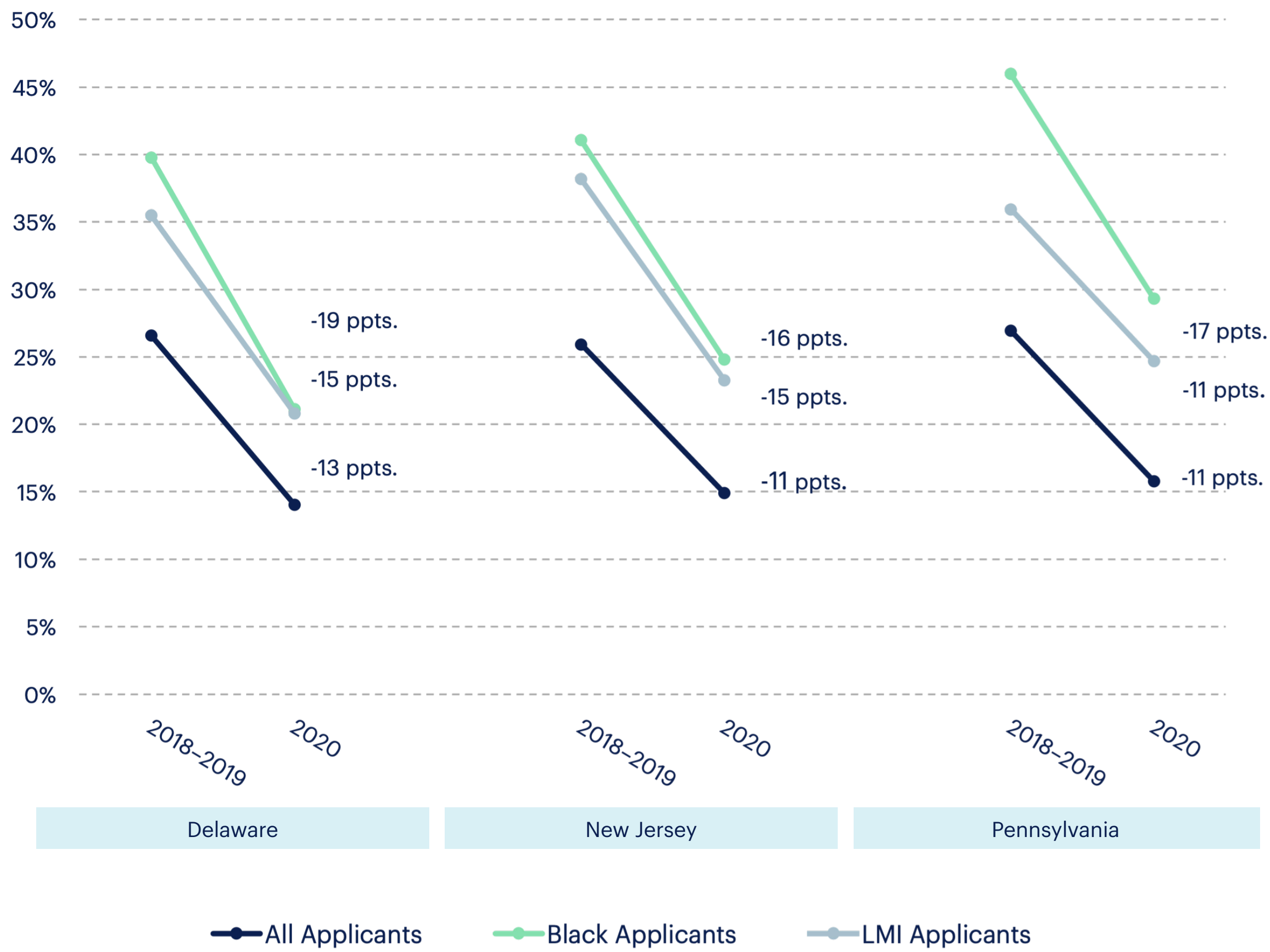
Percent Growth in Refinance Mortgage Applications by Applicant Characteristics (2020 vs. 2018–19 Average)



Sources: *Author's calculations using Home Mortgage Disclosure Act data (2018–20) and the American Community Survey 5-year estimates (2008–12 and 2015–19).*

Figure 3

Change in Raw Denial Rates for Refinance Mortgages (2020 vs. 2018–19 Aggregate)



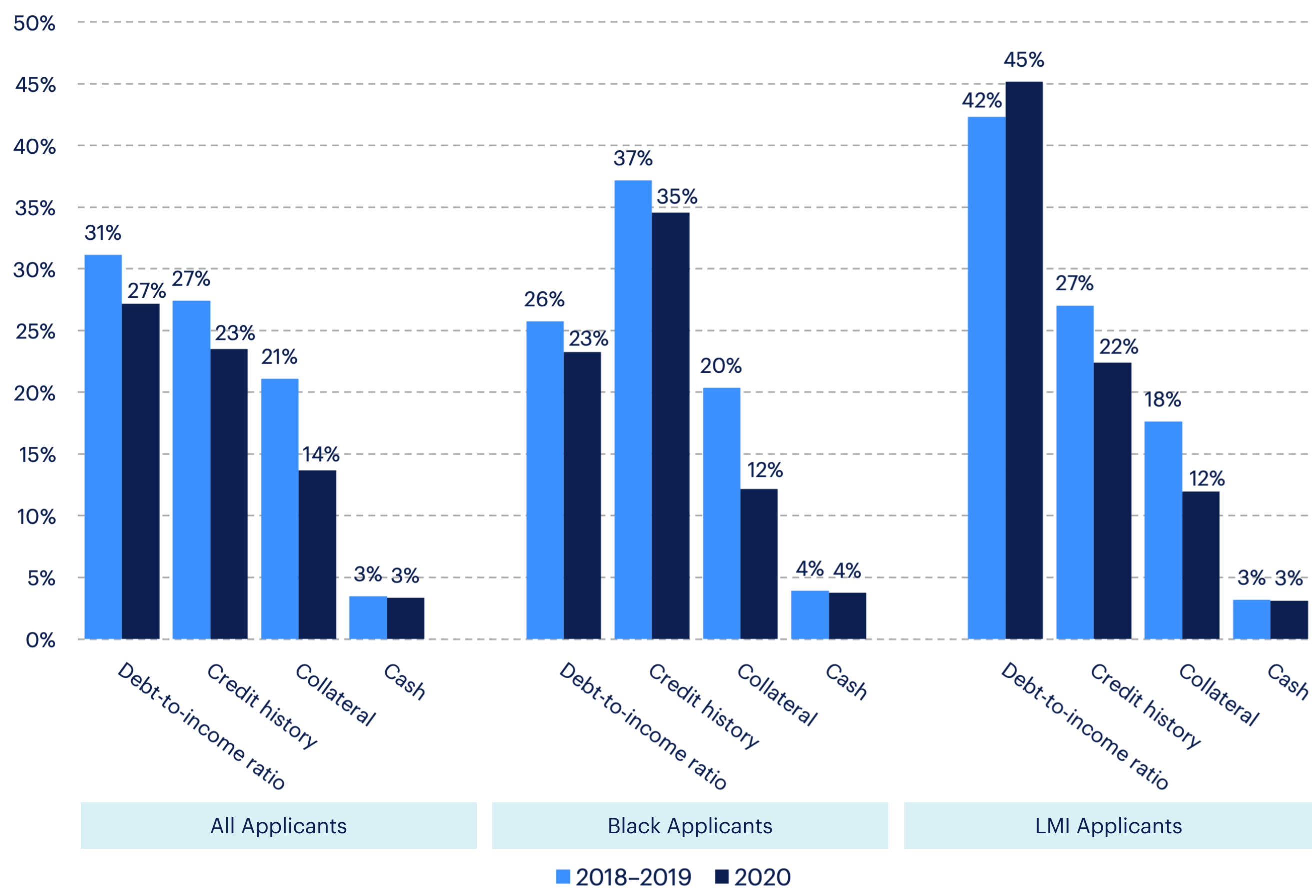
Sources: *Author's calculations using Home Mortgage Disclosure Act data (2018–20) and the American Community Survey 5-year estimates (2008–12 and 2015–19).*

What were the leading reasons Black and LMI applicants were denied refinance mortgages, and how did that change during the pandemic? In the HMDA data, lending institutions can provide up to four reasons explaining why a loan was denied.[6] Four of the most common reasons include that the applicant's DTI ratio was too high, the applicant's credit history was unacceptable, a home appraisal determined that the homeowner did not have sufficient equity in the property (collateral), and the applicant had insufficient cash to close on the loan. In **Figure 4**, I present the share of applications that were denied for each of the four reasons.

A high DTI ratio was the most commonly cited reason a refinance mortgage was denied to an LMI applicant. In 2020, this reason was listed on nearly half (45 percent) of refinance applications denied to LMI applicants in the tristate area, compared with only 27 percent for all denied refinance applications. In addition, the rate at which DTI was listed for LMI applicants grew by 3 percentage points — a statistically significant increase from the preceding two years and the only instance of an increase for any subgroup and reason. Unlike for applicants overall and LMI applicants, Black applicants were most commonly denied a refinance loan because of credit history. In 2020, this reason was cited in slightly more than one-third

Figure 4

Relative Frequency of Reasons Cited on Denied Refinance Mortgage Applications



Sources: *Author's calculations using Home Mortgage Disclosure Act data (2018–20) and the American Community Survey 5-year estimates (2008–12 and 2015–19).*

Note: *All changes between 2018–19 and 2020, except cash for all three groups, are statistically significant at the p<0.001 level. The percentages do not sum to 100 because more than one reason can be listed on a denied application and because less frequently cited reasons are excluded from the figure.*

(35 percent) of applications denied to Black applicants — compared with less than one-quarter (23 percent) of denied applications overall.

Discussion

During the COVID-19 pandemic, the low interest rate environment created the right conditions for an increasing number of tristate area homeowners to pursue refinancing. The number of refinance mortgages originated grew by more than 200 percent in 2020 relative to the average over the two prior years — a phenomenon driven substantially by non-cash-out refinances often holding the promise of a lower monthly payment. However, the refinance origination growth rate for Black and LMI borrowers was about half to three-quarters the level for borrowers overall. Denial rates declined in 2020 for Black and LMI applicants, but the more modest growth in refinance applications for these groups largely explain the refinance mortgage gap observed in this analysis. Prior research suggests that the underrepresentation of Black and low-income homeowners in the pool of refinance applications can be explained by both supply-side and demand-side factors, such as lenders seeking more creditworthy applicants and a lack of familiarity with refinancing opportunities and benefits among lower-income homeowners (Agarwal et al., 2021; Gerardi, Willen, and Zhang, 2020). Both financial institutions and organizations that support homeowners can help create a more equitable financial system by working with Black and LMI homeowners to address the barriers they face in applying for refinance mortgages.

A disproportionately high share of Black and LMI applicants who do apply for a refinance mortgage also face challenges. A high DTI ratio is the most common — and increasing — reason why an LMI applicant might be denied a refinance mortgage. For Black applicants uniquely, the leading cause for denial is credit history, a cause that may be related to observed racial differences in credit quality and the likelihood of having a credit score, both rooted in historical practices that prevented Black consumers from fully participating in the credit market (Choi et al., 2019; Reynolds, Perry, and Choi, 2021). Because refinance mortgages can reduce a homeowner's monthly mortgage payment, increase monthly cash flow, and lower the risk of default, considering alternative credit scoring methods as well as assisting prospective Black and LMI applicants with improving their credit history and lowering their debt-to-income ratio can help ensure that those who do apply will have access to the savings available through refinancing (Karamon, McManus, and Zhu, 2017).

Endnotes

[1] The views expressed here are those of the author and do not necessarily represent the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System. I would like to acknowledge Lisa Nelson, community development research manager, Federal Reserve Bank of Cleveland, for her partnership developing the Home Mortgage Explorer, where the data analyzed for this brief will be available in a forthcoming release. I would also like to thank the following for their helpful comments on an earlier draft of this article: Alaina Barca, Deborah Diamond, Lei Ding, Eileen Divringi, Michael Froehlich, Jimmy Gastner, Spencer Gober, Rachel Labush, Lauren Lambie-Hanson, Lisa Nelson, Theresa Singleton, and Keith Wardrip.

[2] The COVID-19-induced recession began in March 2020 and ended in April 2020 (National Bureau of Economic Research, 2021).

[3] The percentage of mortgages enrolled in forbearance peaked in June 2020, reaching 8.7 percent in Pennsylvania, 14.3 percent in New Jersey, and 7.8 percent in Delaware (Federal Reserve Bank of Atlanta, 2021).

[4] In Pennsylvania, New Jersey, and Delaware in 2020, Hispanic homeowners comprised 5 percent of refinance applications, Black homeowners comprised 5 percent, and LMI homeowners comprised 25 percent. Individual group shares did not vary much by state, except that Black homeowners comprised 11 percent of refinance applications in Delaware, compared with 5 and 4 percent in New Jersey and Pennsylvania, respectively. Further, 29 percent of Black applicants were LMI, as were 30 percent of Hispanic applicants.

[5] Home purchase mortgage originations grew by 15 percent in Delaware, 14 percent in New Jersey, and 6 percent in Pennsylvania between 2018–19 and 2020.

[6] In fact, at least one reason is listed in 98.7 percent of denied refinance loan applications in the tristate area between 2018 and 2020.

Bibliography

Agarwal, Sumit, Souphala Chomsisengphet, Hua Kiefer, Leonard C. Kiefer, and Paolina C. Medina. "Refinancing Inequality During the COVID-19 Pandemic." Federal Deposit Insurance Corporation Center for Financial Research working paper 2021-08, 2021. Available at www.fdic.gov/analysis/cfr/working-papers/2021/cfr-wp2021-08.pdf.

Choi, Jung Hyun, Alanna McCargo, Michael Neal, Laurie Goodman, and Caitlin Young. *Explaining the Black-White Homeownership Gap: A Closer Look at Disparities Across Local Markets*. Washington, D.C.: Urban Institute, 2019. Available at www.urban.org/research/publication/explaining-black-white-homeownership-gap-closer-look-disparities-across-local-markets.

Cortes, Guido Matias and Eliza C. Forsythe. "The Heterogeneous Labor Market Impacts of the COVID-19 Pandemic." Upjohn Institute working paper 20-327, 2020. Available at research.upjohn.org/cgi/viewcontent.cgi?article=1346&context=up_workingpapers.

Federal Reserve Bank of Atlanta. Mortgage Analytics and Performance Dashboard. Federal Reserve Bank of Atlanta, 2021, www.atlantafed.org/center-for-housing-and-policy/data-and-tools/mortgage-analytics-and-performance-dashboard.aspx.

Freddie Mac. "30-Year Fixed Rate Mortgage Average in the United States." Retrieved from FRED, Federal Reserve Bank of St. Louis, fred.stlouisfed.org/series/MORTGAGE30US, accessed January 11, 2022.

Gerardi, Kristopher, Lauren Lambie-Hanson, and Paul Willen. "Racial Differences in Mortgage Refinancing, Distress, and Housing Wealth Accumulation During COVID-19." Consumer Finance Institute discussion paper DP 21-02, 2021. Available at doi.org/10.21799/frbp.dp.2021.02.

Gerardi, Kristopher, Paul Willen, and David Hao Zhang. "Mortgage Prepayment, Race, and Monetary Policy." Federal Reserve Bank of Atlanta working paper 2020-22, 2020. Available at doi.org/10.29338/wp2020-22.

Karamon, Kadiri, Douglas McManus, and Jun Zhu. "Refinance and Mortgage Default: A Regression Discontinuity Analysis of HARP's Impact on Default Rates." *Journal of Real Estate Finance and Economics*, 55:4 (2017), pp. 457–75. Available at doi.org/10.1007/s11146-016-9566-z.

Khater, Sam, Doug McManus, and Liyi Liu. *Almost 50% of Black and Hispanic Borrowers Could Save $1,200 Annually by Refinancing*. McLean, VA: Freddie Mac, 2021. Available at www.freddiemac.com/fmac-resources/research/pdf/20210512_black_hispanic_borrowers_save_refinancing.pdf.

Lane, Ben. "Fannie Mae, Freddie Mac Will Allow Borrowers Who Took Forbearance to Refinance Their Mortgage." *Housing Wire*, May 19, 2020. Available at www.housingwire.com/articles/fannie-mae-freddie-mac-will-allow-borrowers-who-took-forbearance-to-refinance-their-mortgage/.

National Bureau of Economic Research. "U.S. Business Cycle Expansions and Contractions." Web page, National Bureau of Economic Research, July 19, 2021, available at www.nber.org/research/data/us-business-cycle-expansions-and-contractions.

National Housing Law Project. *Foreclosure Protection and Mortgage Payment Relief for Homeowners*. Washington, DC: National Housing Law Project, 2021. Available at www.nhlp.org/wp-content/uploads/2020.04.10-NHLP-Homeowner-Relief-Info-Sheet-Update2.pdf.

Reynolds, Liam, Vanessa Perry, and Jung Hyun Choi. "Closing the Homeownership Gap Will Require Rooting Systemic Racism Out of Mortgage Underwriting." *Urban Wire* (blog), October 13, 2021, www.urban.org/urban-wire/closing-homeownership-gap-will-require-rooting-systemic-racism-out-mortgage-underwriting.

U.S. Census Bureau. "Household Pulse Survey: Week 21." Web page, U.S. Census Bureau, 2021, www.census.gov/data/tables/2020/demo/hhp/hhp21.html.

Wardrip, Keith. *Who's Employed in the Early Months of the COVID-19 Recession? An Analysis by Education, Race, Ethnicity, and Gender*. Philadelphia: Federal Reserve Bank of Philadelphia, 2021. Available at www.philadelphiafed.org/community-development/workforce-and-economic-development/whos-employed-in-the-early-months-of-the-covid19-recession.

Appendix

Refinance Applications and Originations by State and Applicant Characteristic

			All	Hispanic	Black	LMI
Applications	Delaware	2018–19	10,278	375	1,552	4,113
		2020	29,139	984	3,346	7,528
		Raw Increase	18,862	609	1,795	3,415
		Percent Increase	184%	162%	116%	83%
	New Jersey	2018–19	81,848	7,287	5,534	27,620
		2020	244,987	20,335	11,402	57,415
		Raw Increase	163,139	13,049	5,868	29,795
		Percent Increase	199%	179%	106%	108%
	Pennsylvania	2018–19	114,904	3,459	6,556	47,835
		2020	277,878	7,787	10,208	74,681
		Raw Increase	162,975	4,328	3,653	26,847
		Percent Increase	142%	125%	56%	56%
Originations	Delaware	2018–19	7,256	235	879	2,548
		2020	23,951	747	2,448	5,722
		Raw Increase	16,695	512	1,569	3,175
		Percent Increase	230%	218%	178%	125%
	New Jersey	2018–19	58,086	4,593	3,040	16,292
		2020	200,728	15,210	7,984	42,539
		Raw Increase	142,642	10,618	4,945	26,247
		Percent Increase	246%	231%	163%	161%
	Pennsylvania	2018–19	80,337	1,949	3,310	29,146
		2020	224,560	5,616	6,736	53,833
		Raw Increase	144,224	3,668	3,426	24,687
		Percent Increase	180%	188%	104%	85%

Sources: *Author's calculations using Home Mortgage Disclosure Act data (2018–20) and the American Community Survey 5-year estimates (2008–12 and 2015–19).*

Note: *The 2018–19 figures are derived by taking the average of 2018 and 2019 application and origination counts.*