



## Mortgage Market Conditions and Borrower Outcomes: Evidence from the 2012 HMDA Data and Matched HMDA–Credit Record Data

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The Home Mortgage Disclosure Act of 1975 (HMDA) requires most mortgage lending institutions with offices in metropolitan areas to disclose to the public detailed information about their home-lending activity each year. The HMDA data include the disposition of each application for mortgage credit; the type, purpose, and characteristics of each home mortgage that lenders originate or purchase during the calendar year; the census-tract designations of the properties related to those loans; loan pricing information; personal demographic and other information about loan applicants, including their race or ethnicity and income; and information about loan sales.<sup>1</sup>

HMDA was enacted to help members of the public determine whether financial institutions are serving the housing needs of their local communities and treating borrowers and loan applicants fairly, provide information that could facilitate the efforts of public entities to distribute funds to local communities for the purpose of attracting private investment, and help households decide where they may want to deposit their savings.<sup>2</sup> The data have proven to be valuable for research and are often used in public policy deliberations related to the mortgage market.

The 2012 HMDA data consist of information pertaining to more than 15.3 million applications for home loans resulting in nearly 9.8 million loans reported by 7,400 home lenders, including all of the nation's largest mortgage originators. Together, the home-purchase, refinance, and home-improvement loans reported represent most home lending nationwide and thus are broadly representative of all such lending in the United States.<sup>3</sup>

On July 21, 2011, rulemaking responsibility for HMDA was transferred from the Federal Reserve Board to the newly established Consumer Financial Protection Bureau (CFPB).<sup>4</sup> The Federal Financial Institutions Examination Council (FFIEC) continues to be respon-

<sup>1</sup> A list of the items reported under HMDA for 2012 is provided in [appendix A](#). The 2012 HMDA data reflect property locations using the census-tract geographic boundaries created for the 2010 decennial census. The 2012 HMDA data do not reflect recent updates to the list of metropolitan statistical areas (MSAs) published by the Office of Management and Budget. Reporters will use the updated list of MSAs in preparing their 2014 HMDA data. For further information, see Federal Financial Institutions Examination Council (2013), "OMB Announcement—Revised Delineations of MSAs," press release, February 28, [www.ffiec.gov/hmda/OMB\\_MSA.htm](http://www.ffiec.gov/hmda/OMB_MSA.htm).

<sup>2</sup> A brief history of HMDA is available at Federal Financial Institutions Examination Council, "History of HMDA," webpage, [www.ffiec.gov/hmda/history2.htm](http://www.ffiec.gov/hmda/history2.htm).

<sup>3</sup> It is estimated that the HMDA data cover about 90 to 95 percent of Federal Housing Administration lending and between 75 and 85 percent of other first-lien home loans. See U.S. Department of Housing and Urban Development, Office of Policy Development and Research (2011), "A Look at the FHA's Evolving Market Shares by Race and Ethnicity," *U.S. Housing Market Conditions* (May), pp. 6–12, [www.huduser.org/portal/periodicals/ushmc/spring11/USHMC\\_1q11.pdf](http://www.huduser.org/portal/periodicals/ushmc/spring11/USHMC_1q11.pdf).

<sup>4</sup> For information about the Consumer Financial Protection Bureau, see [www.consumerfinance.gov](http://www.consumerfinance.gov).

sible for collecting the HMDA data from reporting institutions and facilitating public access to the information.<sup>5</sup> In September of each year, the FFIEC releases to the public summary disclosure tables pertaining to lending activity from the previous calendar year for each reporting lender as well as aggregations of home-lending activity for each metropolitan statistical area (MSA) and for the nation as a whole.<sup>6</sup> The FFIEC also makes available to the public a data file containing virtually all of the reported information for each lending institution as well as a file that includes key demographic and housing-related data for each census tract drawn from census sources.<sup>7</sup>

One purpose of this article, similar to that of previous articles, is to describe mortgage market activity in 2012 and in prior years using the HMDA data.<sup>8</sup> Notably, for their 2012 lending, covered institutions were directed to use the census-tract definitions created for the 2010 decennial census to identify property location, whereas in the previous 10 years, census-tract definitions based on the 2000 census were used. Moreover, in preparing public disclosures for the 2012 HMDA data, the FFIEC used census-tract population and housing characteristics derived from the 2010 decennial census and the 2006–10 American Community Survey (ACS).<sup>9</sup> Because many census tracts have changed boundaries and have had substantial changes in their population and housing characteristics over the past decade, some caution needs to be exercised when comparing lending patterns across census tracts between 2012 and earlier years.<sup>10</sup>

<sup>5</sup> The FFIEC ([www.ffiec.gov](http://www.ffiec.gov)) was established by federal law in 1979 as an interagency body to prescribe uniform examination procedures, and to promote uniform supervision, among the federal agencies responsible for the examination and supervision of financial institutions. The member agencies are the Board of Governors of the Federal Reserve System, the Consumer Financial Protection Bureau, the Federal Deposit Insurance Corporation, the National Credit Union Administration, the Office of the Comptroller of the Currency, and representatives from state bank supervisory agencies. Under agreements with these agencies and the Department of Housing and Urban Development, the Federal Reserve Board collects and processes the HMDA data.

<sup>6</sup> MSAs have at least one urbanized area of 50,000 or more individuals plus adjacent geographies that have a high degree of economic and social integration with the core area as measured by information on commuting patterns. MSAs are composed of entire counties and include about 85 percent of the U.S. population. The designation of MSAs is not static. From time to time, the Office of Management and Budget updates the list and geographic scope of metropolitan and micropolitan statistical areas. See Office of Management and Budget, “Statistical Programs and Standards,” webpage, [www.whitehouse.gov/omb/inforeg\\_statpolicy#ms](http://www.whitehouse.gov/omb/inforeg_statpolicy#ms). For the 2012 data, the FFIEC prepared and made available to the public 49,829 MSA-specific HMDA reports on behalf of reporting institutions. The FFIEC also makes available to the public similar reports about private mortgage insurance (PMI) activity. The costs incurred by the FFIEC to process the annual PMI data and make reports available to the public are borne by the PMI industry. All of the HMDA and PMI reports are available on the FFIEC’s reports website at [www.ffiec.gov/reports.htm](http://www.ffiec.gov/reports.htm).

<sup>7</sup> The only reported items not included in the HMDA data made available to the public are the loan application number, the date of the application, and the date on which action was taken on the application.

<sup>8</sup> Some lenders file amended HMDA reports, which are not reflected in the initial public data release. A final HMDA data set reflecting these changes is created two years following the initial data release. The data used to prepare this article are drawn from the initial public release for 2012 and from the final HMDA data set for years prior to that. Consequently, numbers in this article for the years 2011 and earlier may differ somewhat from numbers calculated from the initial public release files.

<sup>9</sup> The 2000 census distributed both short- and long-form questionnaires to households. The long-form questionnaire collected more-detailed information on population and housing characteristics about each household than the short form, and the long form was the source of several of the detailed characteristics of census tracts made available to the public. The 2010 census used only a short-form questionnaire; consequently, the FFIEC uses data from the annual ACS to identify many population and housing characteristics of census tracts. Because the annual ACS covers a relatively small sample of households, five years of aggregated annual ACS data are needed to provide reliable estimates of population and housing characteristics at the census-tract level of geography. The disclosure reports prepared by the FFIEC for the 2012 data use the same MSA definitions that were used for the 2011 data reports.

<sup>10</sup> For a more complete discussion of the potential effects on interpreting lending patterns of the change from the 2000 to the 2010 census-tract delineations, see the section “Transition to the 2010 Census Data and Revised Census-Tract Boundaries” in Robert B. Avery, Neil Bhutta, Kenneth P. Brevoort, and Glenn B. Canner (2012), “The Mortgage Market in 2011: Highlights from the Data Reported under the Home Mortgage Disclosure Act,” *Federal Reserve Bulletin*, vol. 98 (December), pp. 1–46, [www.federalreserve.gov/pubs/bulletin/2012/articles/HMDA/default.htm](http://www.federalreserve.gov/pubs/bulletin/2012/articles/HMDA/default.htm).

In addition to our review of the 2012 HMDA data, we present the results of a first look at a new data set composed of HMDA records matched to borrowers' credit records. The matched data provide an opportunity to explore many aspects of home lending that the HMDA data alone cannot address. In particular, we are able to compare the credit characteristics (for example, credit scores) at loan origination, and subsequent payment performance, by various HMDA attributes such as income, minority status, and type of lender. Also, because the credit record data are longitudinal and follow individuals rather than just their mortgages, we are able to study long-term outcomes of mortgage borrowers beyond performance on their mortgage, such as whether credit scores recover after delinquency at a different pace for different demographic groups. We focus on loans made in 2006, which reflect lending activity at the height of the recent housing boom, and loans made in 2010, which reflect the far more subdued market conditions that were still largely present in 2012. We examine credit profiles at origination and subsequent performance for both vintages, and they reveal how dramatically the lending environment has changed.

Our analysis of the annual HMDA data yields several key findings:

- The number of mortgage originations reported in the HMDA data for 2012 increased by about 2.7 million to 9.8 million, or 38 percent, from 2011, driven by a 54 percent increase in the number of refinance loans.
- Home-purchase lending increased at a more modest pace of 13 percent. Government-backed loans originated under programs such as the Federal Housing Administration (FHA) mortgage insurance program and the Department of Veterans Affairs (VA) loan guarantee program continue to play a major role, accounting for nearly 45 percent of first-lien, owner-occupant home-purchase loans.
- Home-purchase lending rose across all income and racial or ethnic groups, but to varying degrees. High-income, as well as non-Hispanic white and Asian, groups posted significantly larger gains than other groups. In contrast, the rise in refinance lending was more even across groups.
- Higher-priced lending (a proxy for subprime lending) remained subdued at about 3 percent of all loans, down from a high of about 28 percent in 2006. Similar to patterns observed in the past, black and Hispanic-white borrowers were more likely, and Asian borrowers less likely, to obtain higher-priced loans than were non-Hispanic white borrowers.
- As in previous years, denial rates were significantly higher for black and Hispanic-white applicants compared with Asian and non-Hispanic white applicants. The HMDA data do not provide sufficient information to determine the extent to which the differences in higher-priced lending and denials reflect illegal discrimination.

Some of the main findings from our analysis of the matched HMDA–credit record data are as follows:

- The credit scores of black and Hispanic-white mortgage borrowers at the time of loan origination tend to be lower, and their subsequent delinquency rates higher, compared with those of Asian and non-Hispanic white borrowers. Among home-purchase borrowers in 2006, for example, we find that over 20 percent of black and Hispanic-white borrowers became 60 days or more past due within two years of origination, compared with about 7 percent of non-Hispanic white borrowers and about 6 percent of Asian borrowers. Delinquency is highly correlated with credit score, local area house price declines, and higher-priced loan status, but substantive differences in delinquency rates across racial and ethnic groups remain after accounting for these variables.

- Loans to low- and moderate-income (LMI) borrowers made by banking institutions in 2006 within their Community Reinvestment Act (CRA) assessment areas—loans that the CRA encourages—had a delinquency rate that was lower than that for all loans combined and less than one-fourth the rate for all higher-priced loans of the same vintage. These findings are inconsistent with the notion that the CRA was a principal driver of the mortgage and financial crisis.
- The credit scores of individuals obtaining a mortgage were much higher in 2010 than in 2006, and delinquency rates on 2010 loans were much lower than those on 2006 loans. We estimate that the fraction of conventional (not government backed) home-purchase loans originated in 2010 that became 60 days or more past due within two years of origination was just 0.5 percent, about one-twentieth the rate for the 2006 vintage. The delinquency rate on 2010 FHA and VA home-purchase loans was 5 percent—significantly higher than that on 2010 conventional loans but lower than that on 2006 FHA and VA loans. Increases in credit scores and reductions in delinquency were substantial across borrowers of all demographic groups.
- The matched data allow back-end payment-to-income (PTI) ratios for mortgage borrowers to be estimated.<sup>11</sup> The fraction of borrowers with an estimated PTI ratio above 43 percent—the threshold level identified in the qualified mortgage rule adopted by the CFPB—declined between 2006 and 2010. In 2010, lower-income borrowers and black and Hispanic-white borrowers were more likely than other groups to have PTI ratios above 43 percent. That said, most home-purchase loans in 2010 with PTI ratios above 43 percent were government backed; under the current regulations, such loans could still be qualified mortgages despite exceeding the threshold.
- Declines in credit scores and their subsequent recovery through 2012 for those who became delinquent on the mortgages they took out in 2006 are very similar across racial and ethnic groups. Credit score recovery occurs only over a long period of time, on average, perhaps reflecting the severity of the financial stress faced by delinquent mortgage borrowers. Indeed, we also find that the majority of those who became delinquent on their mortgages were late on at least one nonmortgage account, such as credit cards or automobile loans. The rate of multiple delinquencies is largely invariant across demographic groups.

## A Profile of the 2012 HMDA Data

For 2012, a total of 7,400 institutions reported on their home-lending activity under HMDA: 4,370 banking institutions; 2,004 credit unions; and 1,026 mortgage companies, 814 of which were not affiliated with a banking institution (these companies are referred to in this article as independent mortgage companies) (table 1). The number of reporting institutions fluctuates some from year to year because of changes in reporting requirements, primarily related to increases in the minimum asset level used to determine coverage.<sup>12</sup> Mergers, acquisitions, and failures also account for some of the year-over-year changes. Finally, periodic changes in the number and geographic footprints of metropolitan areas influence reporting over time, as HMDA's coverage is limited to institutions that have at least one office in an MSA. For 2012, the number of reporting institutions fell

<sup>11</sup> As discussed later, the estimated PTI ratios from the matched data are likely to understate the actual PTI used in underwriting.

<sup>12</sup> For the 2013 reporting year (covering lending in 2012), the minimum asset size for purposes of coverage was \$41 million. The minimum asset size changes from year to year with changes in the Consumer Price Index for Urban Wage Earners and Clerical Workers. See the FFIEC's guide to HMDA reporting at [www.ffiec.gov/hmda/guide.htm](http://www.ffiec.gov/hmda/guide.htm).

**Table 1. Distribution of reporters covered by the Home Mortgage Disclosure Act, by type of institution, 2000–12**

Year	Depository institution			Mortgage company			All institutions
	Banking institution	Credit union	All	Independent	Affiliated <sup>1</sup>	All	
2000	4,721	1,691	6,412	981	332	1,313	7,725
2001	4,686	1,714	6,400	962	290	1,252	7,652
2002	4,698	1,799	6,497	986	310	1,296	7,793
2003	4,675	1,903	6,578	1,171	382	1,553	8,131
2004	4,962	2,030	6,992	1,317	544	1,861	8,853
2005	4,878	2,047	6,925	1,341	582	1,923	8,848
2006	4,846	2,037	6,883	1,334	685	2,019	8,902
2007	4,847	2,019	6,866	1,132	638	1,770	8,636
2008	4,855	2,026	6,881	957	550	1,507	8,388
2009	4,810	2,017	6,827	925	399	1,324	8,151
2010	4,677	2,041	6,718	848	371	1,219	7,937
2011	4,497	2,017	6,514	812	306	1,118	7,632
2012	4,370	2,004	6,374	814	212	1,026	7,400

Note: Here and in all subsequent tables, components may not sum to totals because of rounding.

<sup>1</sup> Subsidiary of a depository institution or an affiliate of a bank holding company.

Source: Here and in subsequent tables and figures, except as noted, Federal Financial Institutions Examination Council, data reported under the Home Mortgage Disclosure Act ([www.ffiec.gov/hmda](http://www.ffiec.gov/hmda)).

3 percent from 2011, continuing a downward trend since 2006, when HMDA coverage included just over 8,900 lenders.<sup>13</sup>

### Reporting Institutions by Size and Mortgage Lending Activity

Although the number of home-lending institutions covered by HMDA is large, most reporters are small as measured by assets, and most receive few applications and extend few loans. For 2012, 56 percent of the depository institutions (banking institutions and credit unions) covered by HMDA had assets under \$250 million, and 71 percent of them reported information on fewer than 100 loans (data derived from [table 2](#)). Among all depository institutions, 50 percent reported on fewer than 100 loans. Across different types of lenders, mortgage companies tend to originate larger numbers of loans on a per-reporter basis than the other institutions (50 percent of the mortgage companies reported more than 1,000 loans, a share equal to more than five times that for depository institutions).

In the aggregate, reporting institutions submitted information on 15.3 million applications for home loans of all types in 2012, up about 30 percent from the total reported for 2011 but far below the 27.5 million applications processed in 2006, just before the housing market decline (data derived from [table 3.A](#)).<sup>14</sup> The majority of loan applications are approved by lenders, and most approved applications result in extensions of credit. In some cases, an application is approved but the applicant decides not to take out the loan; for example, in

<sup>13</sup> Seventeen institutions ceased operations partway through 2012, were not acquired by another reporting institution, and did not have any of their 2012 lending activity reported. These nonreporting companies accounted for only 0.08 percent of the 2011 loan application records submitted under HMDA and, consequently, likely extended few loans during the portion of 2012 in which they were operating.

<sup>14</sup> In total, the 2012 data include about 477,000 requests for preapproval, of which about 182,000 resulted in subsequent loans. About 149,000 of the requests for preapproval were denied at the preapproval stage, and about 65,000 were approved at the preapproval stage by the lender but the consumer did not take further action.

**Table 2. Number and distribution of home lenders, by type of lender and by number of loans, 2012**

Type of lender, and subcategory (asset size in millions of dollars)	Less than 50		50–99		100–249		250–499		500–999		1,000 or more		All	
	Number	Percent of sub-category <sup>1</sup>	Number	Percent of sub-category <sup>1</sup>	Number	Percent of sub-category <sup>1</sup>	Number	Percent of sub-category <sup>1</sup>	Number	Percent of sub-category <sup>1</sup>	Number	Percent of sub-category <sup>1</sup>	Number	Percent of sub-category <sup>1</sup>
<b>Depository institution</b>														
<b>Banking Institution</b>														
Less than 250	1,054	47.4	472	21.2	433	19.5	187	8.4	41	1.8	35	1.6	2,222	100
250–499	206	22.4	124	13.5	248	27.0	218	23.7	90	9.8	34	3.7	920	100
500–999	92	15.0	60	9.8	107	17.4	144	23.4	133	21.6	79	12.8	615	100
1,000 or more	53	9.0	25	4.2	47	7.9	67	11.3	93	15.7	307	51.9	592	100
All	1,405	32.3	681	15.7	835	19.2	616	14.2	357	8.2	455	10.5	4,349	100
<b>Credit Union</b>														
Less than 250	683	52.3	304	23.3	244	18.7	60	4.6	12	.9	2	.2	1,305	100
250–499	36	11.8	42	13.7	99	32.4	76	24.8	45	14.7	8	2.6	306	100
500–999	10	4.9	14	6.8	28	13.7	56	27.3	61	29.8	36	17.6	205	100
1,000 or more	1	.6	1	.6	6	3.4	19	10.6	44	24.6	108	60.3	179	100
All	730	36.6	361	18.1	377	18.9	211	10.6	162	8.1	154	7.7	1,995	100
<b>All depository institutions</b>														
Less than 250	1,737	49.2	776	22.0	677	19.2	247	7.0	53	1.5	37	1.0	3,527	100
250–499	242	19.7	166	13.5	347	28.3	294	24.0	135	11.0	42	3.4	1,226	100
500–999	102	12.4	74	9.0	135	16.5	200	24.4	194	23.7	115	14.0	820	100
1,000 or more	54	7.0	26	3.4	53	6.9	86	11.2	137	17.8	415	53.8	771	100
All	2,135	33.7	1,042	16.4	1,212	19.1	827	13.0	519	8.2	609	9.6	6,344	100
<b>Mortgage company<sup>2</sup></b>														
All	104	10.4	45	4.5	88	8.8	129	12.9	138	13.8	497	49.7	1,001	100
All institutions	2,239	30.5	1,087	14.8	1,300	17.7	956	13.0	657	8.9	1,106	15.1	7,345	100

<sup>1</sup> Distribution sums horizontally. For example, the second column, first row shows that 47.4 percent of banking institutions with assets of less than \$250 million originated less than 50 loans in 2012.

<sup>2</sup> Independent mortgage company, subsidiary of a depository institution, or affiliate of a bank holding company.

2012, nearly 5 percent of all applications were approved but not accepted by the applicant (data not shown in tables). Overall, about 64 percent of the applications submitted in 2012 resulted in an extension of credit (data derived from tables 3.A and 3.B), an increase of about 4 percentage points from 2011.

The total number of loans reported in 2012, nearly 9.8 million (as shown in table 3.B), was about 38 percent larger than the number reported in 2011. Although notably larger in 2012 than in 2011, the number of reported loans remains well below the levels reached in the early and middle 2000s. For example, in 2001, nearly 14 million loans were extended by reporting institutions.

In addition to information on new loan extensions, the HMDA data include details about loans purchased by reporting institutions during the reporting year, although the purchased loans may have been originated at any point in time. For 2012, lenders reported information on about 3.2 million loans that they had purchased from other institutions, an increase of about 8 percent from 2011. Finally, lenders reported on roughly 213,000 requests for preapproval of home-purchase loans that did not result in a loan origination (as shown in table 3.A); preapprovals that resulted in loans are included in the count of loan extensions cited earlier.

### Home-Purchase and Refinance Lending

The rise in lending activity from 2011 to 2012 was driven largely by a substantial rise in refinance lending. Home-purchase lending was up almost 13 percent but remained at a rela-

**Table 3. Home loan activity of lending institutions covered under the Home Mortgage Disclosure Act, 2000–12****A. Applications, requests for preapproval, and purchased loans**

Number

Year	Applications received for home loans, by type of property				Requests for preapproval <sup>2</sup>	Purchased loans	Total
	1–4 family			Multifamily <sup>1</sup>			
	Home purchase	Refinance	Home improvement				
2000	8,278,219	6,543,665	1,991,686	37,765	n.a.	2,398,292	19,249,627
2001	7,692,870	14,284,988	1,849,489	48,416	n.a.	3,767,331	27,643,094
2002	7,406,374	17,491,627	1,529,347	53,231	n.a.	4,829,706	31,310,285
2003	8,179,633	24,602,536	1,508,387	58,940	n.a.	7,229,635	41,579,131
2004	9,792,324	16,072,102	2,202,744	61,895	332,054	5,146,617	33,607,736
2005	11,672,852	15,898,346	2,539,158	57,668	396,686	5,874,447	36,439,157
2006	10,928,866	14,045,961	2,480,827	52,220	411,134	6,236,352	34,155,360
2007	7,609,143	11,566,182	2,218,224	54,230	432,883	4,821,430	26,702,092
2008	5,017,998	7,729,143	1,404,008	42,792	275,808	2,921,821	17,391,570
2009	4,216,589	9,982,768	831,504	26,141	216,865	4,301,021	19,574,888
2010	3,847,796	8,433,333	670,147	25,550	170,026	3,229,295	16,376,147
2011	3,630,284	7,390,690	686,788	35,048	185,943	2,944,662	14,873,415
2012	4,006,445	10,480,189	777,017	46,999	213,322	3,167,578	18,691,550

Note: Here and in subsequent tables, except as noted, data include first and junior liens, one- to four-family homes (site-built and manufactured properties), and owner- and non-owner-occupant loans.

<sup>1</sup> A multifamily property consists of five or more units.

<sup>2</sup> Consists of requests for preapproval that were denied by the lender or were accepted by the lender but not acted on by the borrower. In this article, applications are defined as being for a loan on a specific property; they are thus distinct from requests for preapproval, which are not related to a specific property. Information on preapproval requests was not required to be reported before 2004.

n.a. Not available.

tively subdued level of about 2.7 million loans, which is still well below the level achieved in 2000, let alone the levels achieved just prior to the Great Recession in 2005 and 2006 (although those levels tend to be inflated because they included a large number of junior-lien home-purchase loans). The increase in home-purchase lending from 2011 to 2012 is consistent with a reported increase from 2011 in the sales of both existing and new homes.<sup>15</sup>

The volume of refinance lending over time generally follows the path of interest rates (typically with a fairly short lag), expanding as mortgage rates decline and retrenching when rates increase. The interest rate environment over the past few years has generally been quite favorable for borrowers who have sought to refinance. In some cases, individuals have been able to refinance on more than one occasion to take advantage of declining interest rates. That said, many mortgage borrowers have not been able to refinance, either because they could not meet tightened credit-history-related underwriting standards or because of collateral-related issues, including situations in which the outstanding balance on their loan exceeded the home value.<sup>16</sup>

<sup>15</sup> According to the Commerce Department, sales of new homes increased about 20 percent from 2011 levels, and, according to the National Association of Realtors, sales of existing homes were up about 9 percent (see [www.commerce.gov](http://www.commerce.gov) and [www.realtor.org](http://www.realtor.org)).

<sup>16</sup> See an analysis of the factors influencing refinance activity in Robert B. Avery, Neil Bhutta, Kenneth P. Brevoort, and Glenn B. Canner (2011), “The Mortgage Market in 2010: Highlights from the Data Reported under the Home Mortgage Disclosure Act,” *Federal Reserve Bulletin*, vol. 97 (December), pp. 1–60, [www.federalreserve.gov/pubs/bulletin/2011/articles/HMDA/default.htm](http://www.federalreserve.gov/pubs/bulletin/2011/articles/HMDA/default.htm).

**Table 3. Home loan activity of lending institutions covered under the Home Mortgage Disclosure Act, 2000–12****B. Loans****Number**

Year	Loans, by type of property				Total
	1–4 family			Multifamily <sup>1</sup>	
	Home purchase	Refinance	Home improvement		
2000	4,787,356	2,435,420	892,587	27,305	8,142,668
2001	4,938,809	7,889,186	828,820	35,557	13,692,372
2002	5,124,767	10,309,971	712,123	41,480	16,188,341
2003	5,596,292	15,124,761	678,507	48,437	21,447,997
2004	6,429,988	7,583,928	966,484	48,150	15,028,550
2005	7,382,012	7,101,649	1,093,191	45,091	15,621,943
2006	6,740,322	6,091,242	1,139,731	39,967	14,011,262
2007	4,663,267	4,817,875	957,912	41,053	10,480,107
2008	3,119,692	3,457,774	568,287	31,509	7,177,262
2009	2,792,939	5,772,078	389,981	18,974	8,973,972
2010	2,546,590	4,968,603	341,401	19,168	7,875,762
2011	2,416,854	4,311,870	339,427	27,111	7,095,262
2012	2,729,592	6,637,360	380,251	36,761	9,783,964

<sup>1</sup> See table 3.A, note 1.

The Home Affordable Refinance Program (HARP) was established in 2009 and assists homeowners who have a mortgage owned or guaranteed by Fannie Mae or Freddie Mac in refinancing their mortgage despite having low or negative equity. In the fall of 2011, certain changes were made to HARP in order to increase usage of the program, such as lowering certain fees and removing the 125 percent maximum loan-to-value ratio that had been in place.<sup>17</sup>

Compared with 2011, the number of reported refinance loans in 2012 was up about 54 percent, as mortgage interest rates on 30-year home loans dropped to well below 4 percent during the course of the year (table 3.B and figure 1). The peak month for refinance issuance was October, with nearly 680,000 loans, up from about 440,000 loans in January, as shown in figure 1.<sup>18</sup> Refinances through HARP more than doubled in 2012 over 2011, to 1,074,755 from 438,228.<sup>19</sup>

### Non-Owner-Occupant Lending

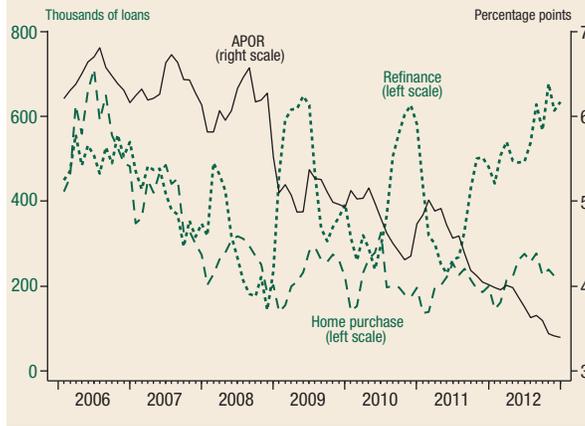
Mortgages used to finance the purchase of non-owner-occupied properties can include purchases of rental properties as well as vacation and second homes. The HMDA data help document the role of such lending over time, showing that growth in non-owner-occupant

<sup>17</sup> For more information on changes to HARP and eligibility requirements, see Federal Housing Finance Agency (2012), *Refinance Report* (Washington: FHFA, December), [www.fhfa.gov/webfiles/25033/Dec12RefiReport.pdf](http://www.fhfa.gov/webfiles/25033/Dec12RefiReport.pdf).

<sup>18</sup> Lenders report the date on which they took action on an application. For originations, the “action date” is the closing date or date of origination for the loan. This date is used to compile data at the monthly level. Generally, the interest rate on a loan is set at an earlier point, known as the “lock date.” The interest rate series in the figure is constructed from the results of a survey of interest rates being offered by lenders to prime borrowers. Since a loan’s pricing likely reflects the interest rate available at the time of the lock date, the timing of the loan volume and interest rate series may be slightly misaligned in the figure.

<sup>19</sup> See Federal Housing Finance Agency, *Refinance Report*, in note 17.

**Figure 1. Volume of home-purchase and refinance originations and average prime offer rate, by month, 2006–12**



Note: The data are monthly. Loans are first- and second-lien mortgages excluding those for multifamily housing. The average prime offer rate (APOR) is published weekly by the Federal Financial Institutions Examination Council. It is an estimate of the annual percentage rate on loans being offered to high-quality prime borrowers based on the contract interest rates and discount points reported by Freddie Mac in its Primary Mortgage Market Survey ([www.ffiec.gov/ratespread/newcalc.aspx](http://www.ffiec.gov/ratespread/newcalc.aspx)).

lending outpaced that in home-purchase lending overall for one- to four-family homes (site-built and manufactured properties) from 2000 to 2006 (data derived from table 4). Beginning in 2007, non-owner-occupant home-purchase lending fell more sharply than home-purchase lending as a whole. Since 2009, however, non-owner-occupant home-purchase lending has grown more robustly than owner-occupant lending, with its share of home-purchase lending growing from just under 12 percent to nearly 15 percent in 2011. From 2011 to 2012, the non-owner-occupant share of home-purchase lending held steady.

### Conventional versus Government-Backed Loans

Although the total number of home-purchase loans has fallen substantially since the middle of the previous decade, virtually all of the decline has involved conventional lending; the volume of nonconventional home-purchase loans (sometimes referred to as government-backed loans)—including loans backed by insurance from the FHA or by guarantees from the VA, the Farm Service Agency (FSA), or the Rural Housing Service (RHS)—has increased markedly since the mid-2000s. From 2006 to 2009, the total number of reported conventional home-purchase loans fell 77 percent, while the number of nonconventional home-purchase loans more than tripled (as shown in table 4). In 2009, the volume of nonconventional home-purchase lending reached its high-water mark, and such lending accounted for nearly 48 percent of the total. The increase in nonconventional lending over this period reflected several factors, including increased loan-size limits allowed under the FHA and VA lending programs and reduced access to conventional loans (including more-stringent underwriting and higher prices), particularly those that allowed the borrower to finance more than 80 percent of the property value.<sup>20</sup>

Nonconventional lending continued to play an outsized role in the home-purchase loan market in 2012, although its share of the total market continued to fall from its 2009 high. Overall, the number of nonconventional home-purchase loans extended in 2012 was about 2 percent higher than in 2011; however, the nonconventional share of the total home-purchase loan market slipped from nearly 43 percent in 2011 to 38 percent in 2012.<sup>21</sup> Among nonconventional lending programs, the number of reported FHA-insured home-purchase loans fell about 2 percent from 2011, but the number of VA-guaranteed loans rose 11 percent and those backed by the FSA or the RHS increased nearly 13 percent (data not shown in tables).

<sup>20</sup> Nonconventional loans play a small role in certain segments of the home-purchase market. For example, nonconventional loans accounted for less than 1 percent of the loans extended to non-owner occupants for the purchase of a home in 2012 (data derived from table 4).

<sup>21</sup> The nonconventional share of the home-purchase market is larger if the focus is limited to owner-occupied dwellings. For 2012, the nonconventional share of owner-occupant home-purchase lending was 44 percent.

**Table 4. Home loan applications and home loans for one- to four-family properties, by occupancy status of home and type of loan, 2000–12**

Number

Year	Applications				Loans			
	Owner occupied		Non-owner occupied		Owner occupied		Non-owner occupied	
	Conventional	Non-conventional <sup>1</sup>	Conventional	Non-conventional <sup>1</sup>	Conventional	Non-conventional <sup>1</sup>	Conventional	Non-conventional <sup>1</sup>
<b>A. Home purchase</b>								
2000	6,350,643	1,311,101	604,919	12,524	3,411,887	963,345	404,133	8,378
2001	5,776,767	1,268,885	627,598	19,688	3,480,441	1,003,795	440,498	14,128
2002	5,511,048	1,133,770	747,758	13,923	3,967,834	870,599	547,963	8,474
2003	6,212,915	1,014,865	943,248	8,623	4,162,412	761,716	667,613	4,560
2004	7,651,113	799,131	1,335,241	6,839	4,946,423	574,841	906,014	2,710
2005	9,208,214	610,650	1,850,174	3,814	5,742,377	438,419	1,199,509	1,707
2006	8,695,877	576,043	1,653,154	3,792	5,281,485	416,744	1,040,668	1,425
2007	5,960,571	599,637	1,044,112	4,823	3,582,949	423,506	655,916	896
2008	2,940,059	1,424,483	647,340	6,116	1,727,692	972,605	415,930	3,465
2009	2,017,982	1,966,335	442,409	6,711	1,174,648	1,323,966	290,560	3,765
2010	1,822,790	1,763,826	425,345	5,853	1,090,328	1,169,729	284,700	1,833
2011	1,791,526	1,558,447	461,481	4,768	1,076,446	1,025,827	313,138	1,443
2012	2,018,056	1,491,427	493,399	3,563	1,330,664	1,043,651	353,884	1,393
<b>B. Refinance</b>								
2000	6,051,484	110,380	379,299	2,502	2,170,162	64,882	198,695	1,293
2001	12,737,863	705,784	823,748	17,592	6,836,106	524,228	516,616	12,181
2002	15,623,327	742,208	1,111,588	14,504	9,058,654	535,370	706,570	9,377
2003	21,779,329	1,236,467	1,563,430	23,310	13,205,472	895,735	1,007,674	15,871
2004	14,476,350	497,700	1,084,536	13,516	6,649,588	304,591	621,667	8,082
2005	14,494,441	262,438	1,135,929	5,538	6,336,004	158,474	603,914	3,257
2006	12,722,112	208,405	1,112,891	2,553	5,382,950	122,134	585,142	1,016
2007	10,173,282	375,860	1,012,827	4,213	4,123,507	196,897	496,577	894
2008	5,829,633	1,240,472	650,042	8,996	2,593,793	522,243	337,914	3,824
2009	7,290,061	2,058,210	619,286	15,211	4,414,509	1,000,911	349,147	7,511
2010	6,325,488	1,449,925	642,401	15,519	3,948,746	655,574	356,183	8,100
2011	5,550,634	1,136,045	682,769	21,242	3,401,097	512,839	384,911	13,023
2012	7,742,152	1,640,334	1,032,851	64,852	5,054,553	919,372	621,804	41,631
<b>C. Home improvement</b>								
2000	1,833,277	91,575	65,286	1,548	843,884	10,896	37,047	760
2001	1,771,472	16,276	60,598	1,143	788,560	6,722	32,990	548
2002	1,459,049	11,582	58,080	636	676,515	4,878	30,533	197
2003	1,430,380	13,876	63,806	325	642,065	5,226	31,113	103
2004	2,081,528	11,887	109,105	224	904,492	5,557	56,341	94
2005	2,401,030	10,053	127,857	218	1,026,340	4,483	62,298	70
2006	2,335,338	12,645	132,694	150	1,067,730	6,115	65,842	44
2007	2,072,688	16,717	128,700	119	887,123	9,409	61,321	59
2008	1,294,162	26,544	83,036	266	516,612	12,347	39,170	158
2009	743,968	28,536	58,754	246	349,993	11,256	28,568	164
2010	583,892	34,449	51,415	391	303,344	11,810	26,190	57
2011	581,023	38,194	60,763	6,808	293,735	14,392	27,768	3,532
2012	637,201	71,092	68,530	194	335,911	12,545	31,713	82

<sup>1</sup> Loans insured by the Federal Housing Administration or backed by guarantees from the U.S. Department of Veterans Affairs, the Farm Service Agency, or the Rural Housing Service.

Most mortgage refinancings involve conventional loans, but just as nonconventional lending has come to play an important role in the home-purchase lending market over the past couple of years, so its role in the refinance market has also become significant. In 2007 and earlier years, no more than 6 percent of refinance loans were nonconventional. Since then, the nonconventional share of refinance loans has been substantially higher, increasing from 12 percent in 2011 to 14 percent in 2012 as the number of reported nonconventional refinance loans rose nearly 83 percent over the same period (as shown in table 4).<sup>22</sup> Among nonconventional loans, those backed by the VA increased 90 percent from 2011, while those backed by FHA insurance increased 78 percent.

### Lending for Manufactured Homes

Beginning with the 2004 HMDA data, reporting institutions have distinguished between loans secured by site-built properties and those related to manufactured homes. Manufactured homes are an important segment of the housing market, accounting for about 8 percent of all one- to four-family housing units.<sup>23</sup> Manufactured-home lending differs along a number of dimensions from lending on site-built homes, in part because most of the homes are sold without land and are treated as chattel-secured lending, which typically carries higher interest rates and shorter terms to maturity than those on loans to purchase site-built homes.<sup>24</sup>

Because manufactured homes typically are less expensive than site-built homes, they provide a low-cost housing option for households with more moderate incomes.<sup>25</sup> The 2012 HMDA data indicate that the mean first-lien, owner-occupant loan amount extended for the purchase of a manufactured home in 2012 was about \$67,000, compared with about \$220,000 for a site-built home, and that the mean income of borrowers purchasing manufactured homes that year was \$50,000, compared with \$95,000 for those borrowing to buy a site-built home (data not shown in tables).

The HMDA data indicate that the annual volume of manufactured-home lending fell more than 50 percent from 2006 to 2009, and, since then, the volume of such lending has been relatively stable (table 5). The 2012 data show an increase in home-purchase lending for manufactured homes of nearly 6 percent from 2011, a rate of increase that is about half that for site-built homes. As noted, 2012 was a very strong year for refinancing, and that activity carried over to the manufactured-home loan market, although the increase in refinance lending from 2011 was much smaller for loans backed by manufactured homes (up about 20 percent) than for those backed by site-built properties (up about 54 percent).

### The Private Mortgage Insurance Market

Lenders typically require that a borrower seeking to purchase an owner-occupied property make a down payment of at least 20 percent of a home's value unless the borrower obtains some type of third-party backing, such as private or government-provided mortgage insur-

<sup>22</sup> For more-detailed analysis on the rise of government-backed lending in recent years, see Avery and others, "The Mortgage Market in 2011," in note 10.

<sup>23</sup> See the 2011 American Housing Survey, which is available on the U.S. Census Bureau's website at [www.census.gov/housing/ahs/data/national.html](http://www.census.gov/housing/ahs/data/national.html).

<sup>24</sup> A chattel mortgage loan (chattel loan) is a loan arrangement in which the lender provides credit for the purchase of an asset, such as a manufactured home, that is not considered a fixed property. In these arrangements, the lender holds the collateral for the duration of the loan. Once the chattel loan is repaid, the lien is extinguished.

<sup>25</sup> See NAHB Research Center, Inc. (1998), *Factory and Site-Built Housing: A Comparison for the 21st Century*, report prepared for the U.S. Department of Housing and Urban Development, available on the Manufactured Housing Institute's website at [www.manufacturedhousing.org/developer\\_resources/factory\\_vs\\_sitebuilt](http://www.manufacturedhousing.org/developer_resources/factory_vs_sitebuilt).

<b>Table 5. Loans on manufactured homes, by occupancy status of home and type of loan, 2004–12</b>				
<b>Number</b>				
Year	Owner occupied		Non-owner occupied	
	Conventional	Nonconventional <sup>1</sup>	Conventional	Nonconventional <sup>1</sup>
<b>A. Home purchase</b>				
2004	107,686	23,974	16,243	125
2005	101,539	27,229	17,927	56
2006	102,458	30,530	19,105	257
2007	95,584	28,554	13,963	92
2008	68,821	27,615	11,392	93
2009	43,543	20,630	7,920	29
2010	44,856	17,086	7,655	29
2011	40,312	14,663	7,482	218
2012	44,697	14,005	7,705	24
<b>B. Refinance</b>				
2004	79,838	6,922	6,507	57
2005	73,520	7,727	6,331	26
2006	64,969	11,750	6,240	68
2007	59,591	16,174	6,332	74
2008	44,342	21,926	6,817	177
2009	37,001	21,768	6,002	73
2010	26,340	9,751	5,024	69
2011	25,299	8,919	4,765	161
2012	31,712	10,363	4,806	225
<b>C. Home improvement</b>				
2004	17,119	128	1,269	5
2005	20,239	219	1,372	3
2006	20,886	490	1,425	2
2007	19,428	889	1,494	2
2008	12,621	681	1,324	36
2009	9,781	439	1,116	1
2010	8,012	427	999	2
2011	8,244	349	972	75
2012	8,814	251	1,026	0

<sup>1</sup> See table 4, note 1.

ance. For a borrower seeking a conventional loan with a low down payment, a lender can require that the borrower purchase mortgage insurance from a private mortgage insurance (PMI) company to protect the lender against default-related losses up to a contractually established percentage of the principal amount. PMI competes with FHA insurance and VA loan guarantees, and, consequently, the volume of PMI issued in a given year reflects not only the general state of the housing market and pricing and underwriting decisions by the PMI companies, but also pricing and underwriting decisions by the FHA and VA as well as loan-size limits applicable to these government programs. PMI also competes with lenders willing to extend junior-lien loans used in conjunction with the purchase of a home (junior-lien lending is discussed in the next section).

The five companies that reported data to the FFIEC for 2012 dominate the PMI industry.<sup>26</sup> For 2012, these PMI companies reported on nearly 657,000 applications for mortgage insurance leading to the issuance of 546,000 insurance policies, up from about 409,000 applications and 312,000 policies in 2011 (data derived from table 6). Although rebounding from 2011 levels, reported volumes of PMI issuance in 2012, as in recent years, have been substantially smaller than levels prior to 2009. The large reduction in PMI issuance reflects several factors, including tighter underwriting and higher prices adopted by the PMI companies (largely in response to elevated claims and losses experienced during the recent recession and the ongoing recovery) and, as noted, an expansion of government-backed lending.<sup>27</sup>

Overall, nearly 60 percent of the PMI policies issued in 2012 covered home-purchase loans, and the remainder covered refinance mortgages (home-improvement loans are classified as refinance loans by the PMI reporters). Although the number of PMI policies issued increased for both home-purchase and refinance purposes from 2011 to 2012, the increase on a percentage basis was notably larger for refinancings, consistent with the relatively large increase in conventional refinance loans described earlier. Virtually all of the applications for PMI policies issued involved loans to purchase site-built properties, and almost all of the applications for PMI related to owner-occupied units.

The data reported by the PMI industry over the years have consistently shown that most applications for insurance are approved, as lenders are very familiar with the underwriting policies of the insurers and generally are not going to submit an application that is unlikely to be approved. Overall, about 3 percent of PMI applications were denied in 2012, down from about 5 percent in 2011 and over 10 percent in 2010 (data not shown in tables).<sup>28</sup> As with the HMDA data, PMI companies report the reason for denial. The three most commonly reported reasons cited by the PMI companies are related to issues with the collateral, the applicants' debt-to-income levels, or their credit histories.

### Junior-Lien Lending

Junior-lien loans can be taken out either in conjunction with the primary mortgage (a piggyback loan) or independently of the first-lien loan. Piggyback loans can be used by borrowers to avoid having to pay for private or government mortgage insurance. Similarly, piggyback loans can also be used to reduce the size of the first-lien conventional loan to be

<sup>26</sup> In 1993, the Mortgage Insurance Companies of America, a trade association, asked the FFIEC to process data from the largest PMI companies on applications for mortgage insurance. These data largely mirror the types of information submitted by lenders covered by HMDA. However, because the PMI companies do not receive all of the information about a prospective loan from the lenders seeking insurance coverage, some items reported under HMDA are not included in the PMI data. In particular, loan pricing information and requests for preapproval are unavailable in the PMI data. In the PMI data, the reported disposition of an application for insurance reflects the actions of the PMI companies or, in the case of a withdrawal of an application, the action of the lender. Two firms that reported data covering activity in 2011, Republic Mortgage Insurance Company and PMI Mortgage Insurance Company, did not report activity for 2012, reflecting financial circumstances that prevented them from underwriting new policies. A third insurer, Triad Guaranty Insurance Corporation, last reported data for activity in 2009. Two additional mortgage insurance companies are relatively active issuers of new policies. Essent Guaranty, Inc., is a relatively new firm (having started operations in 2010), and CMG Mortgage Insurance Company has traditionally specialized in serving the needs of credit unions; combined, these two firms accounted for about 13 percent of the dollar volume of PMI policies written in 2012.

<sup>27</sup> For a more detailed analysis of the decline in PMI issuance, see Robert B. Avery, Neil Bhutta, Kenneth P. Brevoort, and Glenn B. Canner (2010), "The 2009 HMDA Data: The Mortgage Market in a Time of Low Interest Rates and Economic Distress," *Federal Reserve Bulletin*, vol. 96 (December), pp. A39–A77, [www.federalreserve.gov/pubs/bulletin/2010/articles/2009HMDA/default.htm](http://www.federalreserve.gov/pubs/bulletin/2010/articles/2009HMDA/default.htm). For additional information about the PMI industry and its financial condition, see the Mortgage Insurance Companies of America's website at <http://micadc.org>.

<sup>28</sup> For the other applications that did not result in a policy being written, either the application was withdrawn, the application file closed because it was not completed, or the request was approved but no policy was issued.

**Table 6. Private mortgage insurance applications and issuance for one- to four-family properties, by occupancy status of home and type of property, 2000–12**

Number								
Year	Applications				Issuance			
	Owner occupied		Non-owner occupied		Owner occupied		Non-owner occupied	
	Site-built	Manufactured housing <sup>1</sup>	Site-built	Manufactured housing <sup>1</sup>	Site-built	Manufactured housing <sup>1</sup>	Site-built	Manufactured housing <sup>1</sup>
<b>A. Home purchase</b>								
2000	1,204,520	n.a.	95,549	n.a.	955,988	n.a.	75,473	n.a.
2001	1,266,440	n.a.	122,639	n.a.	1,002,385	n.a.	90,929	n.a.
2002	1,324,958	n.a.	153,277	n.a.	1,022,754	n.a.	115,573	n.a.
2003	1,315,221	n.a.	175,958	n.a.	1,021,476	n.a.	134,677	n.a.
2004	1,078,275	10,111	192,086	1,287	807,480	7,508	143,917	984
2005	886,749	10,470	174,174	1,480	676,758	7,512	130,945	1,171
2006	838,304	9,526	134,545	1,273	659,755	6,655	98,744	993
2007	1,260,666	7,928	148,057	1,113	1,015,240	5,531	109,772	774
2008	928,978	4,082	127,773	759	591,108	2,012	66,842	367
2009	341,311	535	14,372	92	206,878	125	5,208	29
2010	214,054	172	7,644	11	154,716	55	4,750	0
2011	245,677	219	11,547	8	193,215	89	8,272	0
2012	371,729	382	15,475	22	316,272	197	12,214	9
<b>B. Refinance<sup>2</sup></b>								
2000	259,245	n.a.	14,771	n.a.	185,721	n.a.	10,859	n.a.
2001	856,112	n.a.	29,870	n.a.	663,465	n.a.	17,453	n.a.
2002	1,056,788	n.a.	40,771	n.a.	775,020	n.a.	23,035	n.a.
2003	1,372,551	n.a.	46,139	n.a.	1,014,558	n.a.	27,116	n.a.
2004	597,353	6,037	31,352	233	389,563	3,956	17,243	138
2005	438,019	3,702	23,217	136	309,821	2,384	13,239	88
2006	346,978	2,554	24,201	121	234,587	1,567	14,187	78
2007	507,137	2,108	36,508	104	362,961	1,313	22,533	58
2008	454,405	1,442	33,822	123	257,189	695	11,519	34
2009	275,541	429	3,611	15	153,633	126	1,121	4
2010	145,953	135	1,437	2	99,598	56	587	0
2011	149,480	196	1,664	0	109,866	72	838	0
2012	266,100	333	2,514	5	216,029	155	1,575	1

<sup>1</sup> Before 2004, lenders did not distinguish between site-built and manufactured housing in reporting; totals for site-built and manufactured housing are shown in the "Site-built" column.

<sup>2</sup> Includes home-improvement loans. Private mortgage insurance companies do not distinguish between refinance loans and home-improvement loans in reporting. Loan totals are the sum of refinance and home-improvement loans.

n.a. Not available.

within the size limits required by Freddie Mac or Fannie Mae without requiring a larger down payment by the borrower on the primary loan.

Junior-lien loans that are taken out independently of a first lien are used for a variety of purposes, including to finance home-improvement projects, to repay other debts, or, in the case of open-ended home equity lines of credit, to provide a readily available source of credit that can be drawn on at the time the borrower needs the funds. Under the regulations that govern HMDA reporting, many standalone junior-lien loans are not reported because either the lender does not know the purpose of the loan or the reasons cited for the loan

are not ones that trigger a reporting requirement.<sup>29</sup> Nonetheless, the annual HMDA data provide an opportunity to monitor junior-lien lending related to home purchases or home improvements.

In the run-up to the Great Recession, large numbers of homebuyers used junior-lien loans to help purchase their homes. In 2006, close to 1.3 million junior liens used for the purchase of owner-occupied properties were reported under HMDA (table 7). This number fell by more than one-half in 2007, dropped sharply again in each of the two ensuing years, and decreased to about 42,000 or fewer such loans annually from 2010 to 2012. More than 1 million junior-lien loans were taken out to refinance loans backed by owner-occupied properties in 2006, and this number also fell substantially starting in 2007 and continued to fall, reaching a low point of roughly 73,000 loans in 2012.

The HMDA data also include information on junior-lien loans used for home improvement. In 2012, about 58,000 junior-lien loans were used for such a purpose, down from about 66,000 reported in 2011. Both the 2011 and 2012 totals are sharply below the historical high mark of nearly 570,000 reached in 2006.

## Loan Sales

For each loan origination reported under HMDA in a given year, lenders report whether that loan was sold during the same year and what type of institution purchased the loan.<sup>30</sup> Broadly, these purchaser types can be broken into those that are government related—Ginnie Mae, Fannie Mae, Freddie Mac, and Farmer Mac—and those that are not. Ginnie Mae and Farmer Mac focus on loans backed directly by government guarantees or insurance, while Fannie Mae and Freddie Mac purchase conventional loans that meet certain loan-size and underwriting standards.

Overall, about 80 percent of the first-lien home-purchase and refinance loans for one- to four-family properties originated in 2012 were reported as sold during the year (data not shown in tables).<sup>31</sup> The share of originations that are sold varies some from year to year and by type and purpose of loan (table 8).<sup>32</sup> For example, 71 percent of the conventional loans extended in 2012 for the purchase of owner-occupied one- to four-family dwellings were sold that year. In contrast, nearly 94 percent of the nonconventional loans used to purchase owner-occupied homes were reported as sold in 2012, with just over one-third reported as sold directly to a government-sponsored enterprise (including Ginnie Mae).<sup>33</sup>

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<sup>29</sup> Unless a junior lien is used for home purchase or explicitly for home improvements, or to refinance an existing lien, it is not reported under HMDA. Further, home equity lines of credit, many of which are junior liens, do not have to be reported in the HMDA data regardless of the purpose of the loan.

<sup>30</sup> The HMDA data tend to understate the importance of the secondary market. HMDA reporters are instructed to record loans sold in a calendar year different from the year originated as being held in portfolio, leading the reported loan sales to understate the proportion of each year's originations that are eventually sold.

<sup>31</sup> Because HMDA reporters are instructed to identify loan sales only if the sale occurs in the same calendar year as the origination, loans made toward the end of the year tend to have a low incidence of being reported as sold. For 2012, the fraction of loans originated in the first nine months of the year that were reported as sold was about 85 percent.

<sup>32</sup> Some loans recorded as sold in the HMDA data are sold to affiliated institutions and thus are not true secondary-market sales. In 2012, about 3 percent of the loans recorded as sold in the HMDA data were sales to affiliates.

<sup>33</sup> Technically, Ginnie Mae does not purchase mortgages; rather, it provides guarantees for mortgage-backed securities composed of government-backed mortgages. The data indicate that commercial banks purchased about 35 percent of government-backed home-purchase mortgages in 2012. Banks may then put these loans into Ginnie Mae securities or hold them in portfolio.

**Table 7. Home loans for one- to four-family properties, by occupancy status of home, type of loan, and lien status, 2004–12**

Number

Year	Owner occupied						Non-owner occupied					
	Conventional			Nonconventional <sup>1</sup>			Conventional			Nonconventional <sup>1</sup>		
	First lien	Junior lien	Unsecured <sup>2</sup>	First lien	Junior lien	Unsecured <sup>2</sup>	First lien	Junior lien	Unsecured <sup>2</sup>	First lien	Junior lien	Unsecured <sup>2</sup>
<b>A. Home purchase</b>												
2004	4,209,787	736,636	...	573,606	1,235	...	853,490	52,524	...	2,703	7	...
2005	4,520,378	1,221,999	...	437,552	867	...	1,049,555	149,954	...	1,685	22	...
2006	4,013,196	1,268,289	...	416,143	601	...	878,325	162,343	...	1,407	18	...
2007	3,031,606	551,343	...	422,450	1,056	...	605,714	50,202	...	888	8	...
2008	1,636,194	91,498	...	971,528	1,077	...	410,377	5,553	...	3,461	4	...
2009	1,132,424	42,224	...	1,322,489	1,477	...	288,526	2,034	...	3,756	9	...
2010	1,049,990	40,338	...	1,168,343	1,386	...	283,017	1,683	...	1,821	12	...
2011	1,036,112	40,334	...	1,024,696	1,131	...	311,831	1,307	...	1,438	5	...
2012	1,289,516	41,148	...	1,042,472	1,179	...	352,604	1,280	...	1,384	9	...
<b>B. Refinance</b>												
2004	6,185,418	464,170	...	304,298	293	...	608,956	12,711	...	8,069	13	...
2005	5,607,642	728,362	...	158,198	276	...	578,491	25,423	...	3,236	21	...
2006	4,347,348	1,035,602	...	121,761	373	...	546,430	38,712	...	989	27	...
2007	3,462,944	660,563	...	196,544	353	...	473,336	23,241	...	879	15	...
2008	2,374,781	219,012	...	521,863	380	...	328,844	9,070	...	3,814	10	...
2009	4,300,322	114,187	...	1,000,422	489	...	342,410	6,737	...	7,495	16	...
2010	3,860,760	87,986	...	655,334	240	...	350,458	5,725	...	8,092	8	...
2011	3,327,415	73,682	...	512,629	210	...	379,519	5,392	...	13,004	19	...
2012	4,981,604	72,949	...	919,183	189	...	616,610	5,194	...	41,620	11	...
<b>C. Home improvement</b>												
2004	357,618	395,582	151,292	2,697	2,243	617	40,028	8,153	8,160	30	54	10
2005	409,947	468,375	148,018	2,197	1,873	413	42,544	10,756	8,998	17	49	4
2006	360,321	553,152	154,257	3,957	1,735	423	43,913	13,739	8,190	18	20	6
2007	301,078	435,187	150,858	7,510	1,579	320	41,670	11,508	8,143	35	18	6
2008	179,506	181,402	155,704	10,477	1,610	260	26,482	5,473	7,215	135	13	10
2009	166,865	84,414	98,714	8,197	2,541	518	19,961	3,193	5,414	99	28	37
2010	134,370	74,941	94,033	8,218	2,663	929	17,777	2,486	5,927	35	17	5
2011	129,851	60,423	103,461	7,116	2,949	4,327	18,491	2,257	7,020	64	45	3,423
2012	161,128	52,545	122,238	8,065	3,718	762	20,494	2,009	9,210	50	20	12

<sup>1</sup> See table 4, note 1.<sup>2</sup> Data on unsecured loans are collected only for home-improvement loans under the Home Mortgage Disclosure Act.

... Not applicable.

The share of conventional loans made to non-owner occupants that are reported as sold is smaller than that of such loans made to owner occupants. Also, the vast majority of conventional loans extended for the purchase of manufactured homes are held in portfolio; only about 16 percent of such loans were sold in 2012 (data not shown in tables).

### Borrower Incomes and Loan Amounts

Under HMDA, lenders report the loan amount applied for and the applicant income that the lender relied on in making the credit decision, if income was considered in underwrit-

**Table 8. Distribution of home loan sales for one- to four-family properties, by occupancy status of home and type of loan, 2000–12**

Percent

Year	Owner occupied				Non-owner occupied			
	Conventional		Nonconventional <sup>1</sup>		Conventional		Nonconventional <sup>1</sup>	
	Share sold	Memo: Share sold to GSEs <sup>2</sup>	Share sold	Memo: Share sold to GSEs <sup>2</sup>	Share sold	Memo: Share sold to GSEs <sup>2</sup>	Share sold	Memo: Share sold to GSEs <sup>2</sup>
<b>A. Home purchase</b>								
2000	64.8	31.3	89.1	46.0	53.7	29.3	81.4	22.9
2001	66.8	34.6	86.1	46.2	57.9	34.0	92.2	23.0
2002	71.0	36.7	88.7	43.7	62.5	36.4	87.9	29.7
2003	72.3	33.1	91.2	40.7	63.1	31.8	80.8	21.6
2004	74.2	25.5	92.2	40.5	63.5	23.6	63.7	11.5
2005	75.9	18.7	89.9	32.6	69.7	18.0	49.7	16.3
2006	74.8	19.0	88.6	31.7	69.3	19.0	61.3	15.0
2007	70.1	29.1	87.6	32.5	61.4	26.9	74.9	27.6
2008	71.6	40.1	90.0	36.5	60.3	36.3	95.1	21.6
2009	70.1	40.1	91.4	35.0	56.4	34.7	88.9	35.2
2010	69.7	37.0	92.7	29.7	30.3	34.8	91.7	24.1
2011	68.9	34.2	93.5	33.4	61.9	34.5	80.3	35.2
2012	70.7	39.3	93.7	34.6	60.8	38.4	78.6	24.6
<b>B. Refinance</b>								
2000	47.4	18.0	84.5	50.0	47.3	21.7	86.3	42.8
2001	61.3	37.2	85.0	51.5	61.2	38.4	92.1	33.2
2002	66.8	40.4	85.7	45.0	65.9	43.2	81.3	45.4
2003	74.2	44.8	93.8	48.0	69.8	40.4	87.4	50.7
2004	69.0	27.6	93.2	44.2	62.2	22.6	88.0	35.9
2005	69.9	19.7	89.3	33.5	64.7	16.6	85.7	40.1
2006	65.7	15.2	86.8	31.8	64.9	15.7	79.0	29.6
2007	61.7	21.9	85.1	34.5	61.1	23.9	86.9	23.9
2008	65.3	38.0	88.8	35.4	56.8	33.0	95.7	20.4
2009	79.4	52.8	89.7	37.9	61.2	40.1	93.5	36.0
2010	76.8	46.1	90.2	37.8	65.4	40.3	90.5	43.8
2011	72.7	46.4	91.3	49.8	66.4	43.5	89.5	57.6
2012	77.1	55.4	92.3	57.0	73.2	56.4	91.9	69.6
<b>C. Home improvement</b>								
2000	6.3	1.1	15.6	4.7	4.4	.4	52.9	.5
2001	6.4	1.5	22.3	7.6	3.9	.8	73.7	1.1
2002	5.9	1.4	28.4	7.1	4.0	.9	55.3	3.6
2003	10.5	.8	43.8	6.7	6.5	.7	35.0	3.9
2004	23.6	6.0	48.7	23.5	23.1	7.5	20.2	7.4
2005	27.2	7.0	46.2	25.3	30.2	8.8	27.1	8.6
2006	22.0	5.3	60.4	31.8	29.4	8.9	29.5	15.9
2007	19.1	6.4	70.6	30.8	26.4	12.1	39.0	11.9
2008	14.7	8.7	80.0	49.2	20.0	14.5	74.7	6.3
2009	24.9	17.8	63.4	38.9	17.7	13.4	56.1	9.8
2010	21.2	13.2	60.6	34.7	18.3	12.6	47.4	28.1
2011	19.1	11.4	45.3	26.8	19.8	13.4	.3	.1
2012	21.7	14.1	60.1	24.6	19.3	13.4	48.8	8.5

<sup>1</sup> See table 4, note 1.<sup>2</sup> Loans sold to government-sponsored enterprises (GSEs) include those with a purchaser type of Fannie Mae, Freddie Mac, Ginnie Mae, or Farmer Mac.

**Table 9. Cumulative distribution of home loans, by borrower income and by purpose and type of loan, 2012**

Percent

Upper bound of borrower income (thousands of dollars) <sup>1</sup>	Home purchase					Refinance				
	FHA	VA	Conventional <sup>2</sup>	Total	Memo: Higher priced <sup>3</sup>	FHA	VA	Conventional <sup>2</sup>	Total	Memo: Higher priced <sup>3</sup>
24	4.9	.9	2.7	3.2	8.6	4.1	2.2	2.5	2.5	9.8
49	41.2	21.0	23.8	28.9	47.4	26.2	16.9	16.5	17.0	39.0
74	69.5	53.7	45.4	53.6	71.1	55.3	43.7	36.9	37.9	65.4
99	85.3	74.8	61.7	70.1	83.0	75.7	65.2	55.5	56.7	81.1
124	92.8	86.8	73.4	80.6	89.0	87.3	80.1	69.9	71.0	89.5
149	96.3	93.1	81.2	86.9	92.5	93.1	88.5	79.5	80.3	93.6
199	98.8	97.9	89.7	93.2	95.6	97.7	95.9	89.6	90.1	96.8
249	99.5	99.3	93.7	96.0	97.1	99.0	98.4	94.0	94.4	98.0
299	99.7	99.7	95.8	97.4	97.9	99.5	99.3	96.2	96.4	98.6
More than 299	100	100	100	100	100	100	100	100	100	100
Memo: Borrower income, by selected loan type (thousands of dollars) <sup>1</sup>										
Mean	66.0	81.8	112.0	95.1	74.7	79.9	93.1	117.1	114.7	76.2
Median	56	71	81	70	52	70	81	91	90	59

Note: First-lien mortgages for owner-occupied, one- to four-family, site-built properties; excludes business loans. Business-related loans are those for which the lender reported that the race, ethnicity, and sex of the applicant or co-applicant are "not applicable." For loans with two or more applicants, lenders covered under the Home Mortgage Disclosure Act (HMDA) report data on only two. Income for two applicants is reported jointly.

<sup>1</sup> Income amounts are reported under HMDA to the nearest \$1,000.

<sup>2</sup> Conventional loans plus some loans originated with a Farm Service Agency or Rural Housing Service guarantee.

<sup>3</sup> Higher-priced loans are those with annual percentage rates 1.5 percentage points or more above the average prime offer rate for loans of a similar type published weekly by the Federal Financial Institutions Examination Council.

FHA Federal Housing Administration.

VA Department of Veterans Affairs.

ing. Lenders do not necessarily collect and report loan applicants' entire income, because in some cases borrowers have more income than is needed to qualify for the loan.

## Borrower Income

The vast majority of loan applications and loans reported under HMDA include income information. For example, in 2012, income information was not reported for less than 1 percent of the borrowers purchasing a home with a nonconventional loan and for 3 percent of those using a conventional loan (data not shown in tables). Income information is reported less often for refinance loans (about 10 percent of all such loans), particularly those that are nonconventional (about 55 percent of the FHA loans and 68 percent of the VA loans), most likely because of streamlined refinance programs that do not require current income to be considered in underwriting.

While the available information on amounts borrowed and applicant income can be evaluated in many ways, we focus here on patterns by loan product and purpose. For home-purchase or refinance lending, borrowers using FHA and VA loans have lower mean or median incomes than borrowers using other loans, despite the fact that the FHA (and VA) loan limits were increased substantially in 2008, potentially allowing the program to be used much more widely than by the LMI households that have been the traditional focus of the program (table 9). Although the share of FHA home-purchase borrowers with incomes above \$100,000 has roughly doubled since 2007 (the year before the increase in loan limits) to about 15 percent, the median income of borrowers obtaining FHA home-purchase loans was still more than 40 percent lower than that of borrowers getting conventional loans

**Table 10. Cumulative distribution of home loans, by loan amount and by purpose and type of loan, 2012**  
Percent

Upper bound of loan amount (thousands of dollars) <sup>1</sup>	Home purchase					Refinance				
	FHA	VA	Conventional <sup>2</sup>	Total	Memo: Higher priced <sup>3</sup>	FHA	VA	Conventional <sup>2</sup>	Total	Memo: Higher priced <sup>3</sup>
24	.1	.0	.4	.2	2.5	.1	.0	.4	.3	3.8
49	1.6	.3	2.6	2.1	13.2	.9	.5	2.9	2.5	15.2
74	8.4	2.2	8.3	7.8	29.4	4.9	3.2	9.0	8.3	31.4
99	20.3	6.6	16.0	16.5	44.5	13.0	8.7	17.6	16.7	46.0
149	49.1	25.0	35.9	39.0	68.7	39.5	28.3	37.6	37.2	67.7
199	70.8	49.4	52.4	57.8	81.9	62.9	50.3	55.0	55.4	79.9
274	87.9	74.2	70.3	76.1	90.9	83.8	73.5	73.2	74.2	89.8
417	97.2	93.4	88.4	91.5	96.6	96.2	93.5	92.7	93.1	97.1
625	99.5	98.9	96.0	97.3	98.8	99.4	98.8	97.6	97.9	99.1
729	99.9	99.6	97.4	98.4	99.2	99.9	99.5	98.5	98.7	99.4
More than 799	100	100	100	100	100	100	100	100	100	100
Memo: Loan amount (thousands of dollars)										
Mean	173.7	227.6	242.9	220.2	142.4	193.2	226.3	223.3	220.6	141.5
Median <sup>1</sup>	151	201	190	176	110	169	199	183	183	107
Note: First-lien mortgages for owner-occupied, one- to four-family, site-built properties; excludes business loans. Business-related loans are those for which the lender reported that the race, ethnicity, and sex of the applicant or co-applicant are "not applicable."										
<sup>1</sup> Loan amounts are reported under the Home Mortgage Disclosure Act to the nearest \$1,000.										
<sup>2</sup> See table 9, note 2.										
<sup>3</sup> See table 9, note 3.										
FHA Federal Housing Administration.										
VA Department of Veterans Affairs.										

(data derived from table 9). The low down-payment requirements on FHA-insured loans—the average loan-to-value ratio for FHA home-purchase loans was 96 percent in 2012—may be continuing to attract borrowers with more moderate incomes.<sup>34</sup>

## Loan Amounts

Unlike the data on borrower incomes, all applications and loans reported in the HMDA data include the amount of the loan requested or extended. Loan amounts differ across loan types, with FHA or VA loans, on average, being notably smaller than conventional loans (table 10), although VA loans are notably larger than FHA loans. For example, on average, home-purchase loans backed by FHA insurance are only about 72 percent the size of conventional home-purchase loans, and about one-half of FHA loans are for amounts under \$150,000. However, an upward shift in the distribution of loan amounts for both FHA and VA home-purchase loans has occurred in the past several years, continuing into 2012 (data for only 2012 shown in tables). The shift reflects several factors, including the higher loan limits allowed under these programs.

## Application Disposition, Loan Pricing, and Status under the Home Ownership and Equity Protection Act

In table 11, we categorize every loan application reported in 2012 into 25 distinct product categories characterized by type of loan and property, purpose of loan, and lien and

<sup>34</sup> See U.S. Department of Housing and Urban Development (2013), *Quarterly Report to Congress on FHA Single-Family Mutual Mortgage Insurance Fund Programs, FY 2012 Q4* (Washington: HUD, April 24), [http://portal.hud.gov/hudportal/documents/huddoc?id=fhartc\\_q4\\_2013.pdf](http://portal.hud.gov/hudportal/documents/huddoc?id=fhartc_q4_2013.pdf).

**Table 11. Disposition of applications for home loans, and origination and pricing of loans, by type of home and type of loan, 2012**

Type of home and loan	Applications			
	Number submitted	Acted upon by lender		
		Number	Number denied	Percent denied
<b>1-4 FAMILY</b>				
<b>Nonbusiness related<sup>1</sup></b>				
<b>Owner occupied</b>				
<i>Site built</i>				
Home purchase				
Conventional				
First lien	1,736,554	1,533,418	209,626	13.7
Junior lien	58,107	50,920	7,815	15.3
Government backed				
First lien	1,459,682	1,285,907	209,570	16.3
Junior lien	1,822	1,419	214	15.1
Refinance				
Conventional				
First lien	7,555,325	6,528,789	1,265,356	19.4
Junior lien	114,490	106,068	30,025	28.3
Government backed				
First lien	1,618,392	1,268,509	281,097	22.2
Junior lien	329	240	48	20.0
Home improvement				
Conventional				
First lien	248,329	225,580	58,660	26.0
Junior lien	115,480	107,699	50,724	47.1
Government backed				
First lien	14,361	11,136	2,942	26.4
Junior lien	10,977	8,395	4,442	52.9
Unsecured (conventional or government backed)	296,598	290,281	152,571	52.6
<i>Manufactured</i>				
Conventional, first lien				
Home purchase	221,091	215,086	120,425	56.0
Refinance	62,156	56,728	20,853	36.8
Other	71,902	63,333	22,922	36.2
<b>Non-owner occupied<sup>2</sup></b>				
Conventional, first lien				
Home purchase	455,810	404,262	59,621	14.7
Refinance	994,283	845,957	211,487	25.0
Other	141,044	125,094	43,836	35.0
<b>Business related<sup>1</sup></b>				
Conventional, first lien				
Home purchase	37,215	36,290	1,204	3.3
Refinance	38,438	37,083	2,213	6.0
Other	11,266	10,504	805	7.7
<b>MULTIFAMILY<sup>3</sup></b>				
Conventional, first lien				
Home purchase	14,714	13,735	1,308	9.5
Refinance	25,844	24,162	3,391	14.0
Other	6,441	6,039	809	13.4
<b>Total</b>	<b>15,310,651</b>	<b>13,256,634</b>	<b>2,761,964</b>	<b>20.8</b>

<sup>1</sup> Business-related applications and loans are those for which the lender reported that the race, ethnicity, and sex of the applicant or co-applicant are "not applicable"; all other applications and loans are nonbusiness related.

<sup>2</sup> Includes applications and loans for which occupancy status was missing.

<sup>3</sup> Includes business-related and nonbusiness-related applications and loans for owner-occupied and non-owner-occupied properties.

**Table 11. Disposition of applications for home loans, and origination and pricing of loans, by type of home and type of loan, 2012—continued**

Type of home and loan	Loans originated												Number of HOEPA-covered loans <sup>5</sup>
	Number	Loans with APOR spread above the threshold <sup>4</sup>											
		Number	Percent	Distribution, by percentage points of APOR spread							APOR spread (percentage points)		
				1.5–1.99	2–2.49	2.5–2.99	3–3.99	4–4.99	<sup>5</sup> or more	Mean	Median		
<b>1–4 FAMILY</b>													
<b>Nonbusiness related<sup>1</sup></b>													
<b>Owner occupied</b>													
<i>Site built</i>													
Home purchase													
Conventional													
First lien	1,243,784	39,405	3.2	40.7	20.4	13.5	15.8	5.4	4.3	2.6	2.2	...	
Junior lien	40,772	7,386	18.1	...	...	...	27.6	45.4	27.0	4.6	4.3	...	
Government backed													
First lien	1,028,023	30,645	3.0	74.8	16.1	4.3	3.5	1.1	.2	1.9	1.7	...	
Junior lien	1,174	34	2.9	...	...	...	5.9	26.5	67.7	5.3	5.3	...	
Refinance													
Conventional													
First lien	4,944,515	57,979	1.2	51.5	17.0	10.1	12.7	5.2	3.6	2.4	2.0	685	
Junior lien	70,791	9,631	13.6	...	...	...	29.5	41.7	28.9	4.7	4.3	167	
Government backed													
First lien	907,654	25,993	2.9	22.9	6.7	14.7	48.5	6.9	.4	3.0	3.2	42	
Junior lien	185	12	6.5	...	...	...	8.3	33.3	58.3	5.1	5.4	0	
Home improvement													
Conventional													
First lien	157,350	10,179	6.5	30.6	17.8	13.5	20.0	9.3	9.0	3.0	2.6	328	
Junior lien	51,882	7,105	13.7	...	...	...	30.9	35.6	33.5	4.8	4.4	152	
Government backed													
First lien	7,437	1,098	14.8	18.4	7.0	14.4	53.3	5.2	1.7	3.0	3.2	4	
Junior lien	3,698	3,415	92.3	...	...	...	2.3	10.7	87.0	7.0	7.2	0	
Unsecured (conventional or government backed)													
	117,719	...	...	...	...	...	...	...	...	...	...	...	
<i>Manufactured</i>													
Conventional, first lien													
Home purchase	44,351	36,426	82.1	4.2	4.2	4.5	12.3	15.3	59.6	6.0	5.7	...	
Refinance	30,866	8,836	28.6	21.9	11.5	11.2	20.4	14.8	20.1	3.6	3.2	536	
Other	34,549	5,988	17.3	37.2	15.5	7.6	14.3	15.1	10.4	3.1	2.4	192	
<b>Non-owner occupied<sup>2</sup></b>													
Conventional, first lien													
Home purchase	319,891	14,726	4.6	49.1	18.3	9.7	10.7	4.6	7.5	2.6	2.0	...	
Refinance	588,764	32,399	5.5	71.9	16.1	5.6	3.7	1.5	1.1	2.0	1.8	50	
Other	76,152	3,211	4.2	25.1	9.6	6.9	19.4	25.2	13.7	3.5	3.6	19	
<b>Business related<sup>1</sup></b>													
Conventional, first lien													
Home purchase	34,094	673	2.0	25.0	23.0	27.2	17.4	5.2	2.2	2.6	2.6	...	
Refinance	34,069	503	1.5	22.5	27.6	18.3	22.9	6.6	2.2	2.7	2.5	6	
Other	9,483	171	1.8	47.4	15.2	6.4	15.8	8.8	6.4	2.6	2.0	4	
<b>MULTIFAMILY<sup>3</sup></b>													
Conventional, first lien													
Home purchase	11,757	137	1.2	36.5	27.7	12.4	16.1	5.8	1.5	2.4	2.1	0	
Refinance	19,966	280	1.4	46.8	25.0	12.9	9.6	3.6	2.1	2.4	2.1	0	
Other	5,038	24	.5	29.2	16.7	16.7	25.0	8.3	4.2	2.8	2.6	0	
<b>Total</b>	<b>9,783,964</b>	<b>296,256</b>	<b>3.0</b>	<b>39.0</b>	<b>13.0</b>	<b>8.4</b>	<b>16.2</b>	<b>9.6</b>	<b>13.9</b>	<b>3.2</b>	<b>2.4</b>	<b>2,185</b>	

<sup>4</sup> Average prime offer rate (APOR) spread is the difference between the annual percentage rate on the loan and the APOR for loans of a similar type published weekly by the Federal Financial Institutions Examination Council. The threshold for first-lien loans is a spread of 1.5 percentage points; for junior-lien loans, it is a spread of 3.5 percentage points.

<sup>5</sup> Loans covered by the Home Ownership and Equity Protection Act of 1994 (HOEPA), which does not apply to home-purchase loans.  
... Not applicable.

owner-occupancy status. Each product category contains information on the number of total and preapproval applications, application denials, originated loans, loans with prices above the reporting thresholds established by HMDA reporting rules for identifying higher-priced loans, loans covered by the Home Ownership and Equity Protection Act of 1994 (HOEPA), and the mean and median average prime offer rate (APOR) spreads for loans reported as higher priced.

### Disposition of Applications

As noted, the 2012 HMDA data include information on about 15.3 million loan applications, nearly 87 percent of which were acted on by the lender (data derived from table 11). With respect to the disposition of applications, patterns of denial rates are largely consistent with what had been observed in earlier years.<sup>35</sup> In 2012, denial rates on applications for home-purchase loans are notably lower than those observed on applications for refinance or home-improvement loans. Denial rates on applications backed by manufactured housing are much higher than those on applications backed by site-built homes. For example, the denial rate for first-lien conventional home-purchase loan applications for owner-occupied site-built properties was 13.7 percent in 2012, compared with a denial rate of 56 percent for such applications for owner-occupied manufactured homes.

Under the provisions of HMDA, reporting institutions may choose to report the reasons they provide consumers whose applications are turned down. Reporting institutions may cite up to three reasons for each denied application, although most of those that provide this information cite only one reason. An analysis of the reasons for denial provided to prospective borrowers whose applications for conventional credit for the purchase of owner-occupied homes were turned down finds that collateral-related issues and debt-to-income considerations were the two categories of reasons that have had the largest increases since 2006 (data not shown in tables). Debt-to-income issues were also cited somewhat more often for applications for FHA or VA home-purchase loans, but collateral was the category that had the largest percentage increase.

### The Incidence of Higher-Priced Lending

Price-reporting rules under HMDA since late 2009 define higher-priced first-lien loans as those with an annual percentage rate (APR) of at least 1.5 percentage points above the APOR for loans of a similar type (for example, a 30-year fixed-rate mortgage).<sup>36</sup> The spread for junior-lien loans must be at least 3.5 percentage points for such loans to be con-

<sup>35</sup> The information provided in the tables is identical to that provided in analyses of earlier years of HMDA data. Comparisons of the numbers in the tables with those in tables from earlier years, including statistics on denial rates, can be made by consulting the following articles: Avery and others, "The Mortgage Market in 2011," in note 10; Avery and others, "The Mortgage Market in 2010," in note 16; Avery and others, "The 2009 HMDA Data," in note 27; and Robert B. Avery, Neil Bhutta, Kenneth P. Brevoort, Glenn B. Canner, and Christa N. Gibbs (2010), "The 2008 HMDA Data: The Mortgage Market during a Turbulent Year," *Federal Reserve Bulletin*, vol. 96 (April), pp. A169–A211, [www.federalreserve.gov/pubs/bulletin/2010/articles/HMDA/default.htm](http://www.federalreserve.gov/pubs/bulletin/2010/articles/HMDA/default.htm). Also see Robert B. Avery, Kenneth P. Brevoort, and Glenn B. Canner (2008), "The 2007 HMDA Data," *Federal Reserve Bulletin*, vol. 94 (December), pp. A107–A146, [www.federalreserve.gov/pubs/bulletin/2008/articles/hmda/default.htm](http://www.federalreserve.gov/pubs/bulletin/2008/articles/hmda/default.htm); Robert B. Avery, Kenneth P. Brevoort, and Glenn B. Canner (2007), "The 2006 HMDA Data," *Federal Reserve Bulletin*, vol. 93 (December), pp. A73–A109, [www.federalreserve.gov/pubs/bulletin/2007/articles/hmda/default.htm](http://www.federalreserve.gov/pubs/bulletin/2007/articles/hmda/default.htm); Robert B. Avery, Kenneth P. Brevoort, and Glenn B. Canner (2006), "Higher-Priced Home Lending and the 2005 HMDA Data," *Federal Reserve Bulletin*, vol. 92 (September), pp. A123–A166, [www.federalreserve.gov/pubs/bulletin/2006/hmda/default.htm](http://www.federalreserve.gov/pubs/bulletin/2006/hmda/default.htm); and Robert B. Avery, Glenn B. Canner, and Robert E. Cook (2005), "New Information Reported under HMDA and Its Application in Fair Lending Enforcement," *Federal Reserve Bulletin*, vol. 91 (Summer), pp. 344–94, [www.federalreserve.gov/pubs/bulletin/2005/summer05\\_hmda.pdf](http://www.federalreserve.gov/pubs/bulletin/2005/summer05_hmda.pdf).

<sup>36</sup> For more information about the rule changes related to higher-priced lending and the ways in which they affect the incidence of reported higher-priced lending over time, see Avery and others, "The 2009 HMDA Data," in note 27.

sidered higher priced. The APOR, which is published weekly by the FFIEC, is an estimate of the APR on loans being offered to high-quality prime borrowers based on the contract interest rates and discount points reported by Freddie Mac in its Primary Mortgage Market Survey.<sup>37</sup>

The data show that the incidence of higher-priced lending across all products in 2012 was about 3 percent, down about 70 basis points, or 0.7 percentage points, from 2011 (as shown in table 11). The incidence varies across loan types, products, and purposes. First, among home-purchase loans, conventional loans tend to have a higher incidence of higher-priced lending than nonconventional loans, although the difference has narrowed in recent years. In 2012, among first-lien home-purchase loans for site-built homes, 3.2 percent of conventional loans had APRs above the price-reporting threshold, compared with 3.0 percent of nonconventional loans. (Among nonconventional loans, those backed by VA guarantees have a particularly low incidence of being higher priced: In 2012, only about 0.1 percent of the VA-guaranteed first-lien home-purchase loans were higher priced.)

Second, with few exceptions, first-lien loans have a lower incidence of higher-priced lending than do junior-lien loans for the same purposes. For example, in 2012, the incidence of higher-priced lending for conventional first-lien refinance loans was 1.2 percent, whereas for comparable junior-lien loans it was 13.6 percent. This relationship is found despite the fact that the threshold for reporting a junior-lien loan as higher priced is 2 percentage points higher than it is for so reporting a first-lien loan. Third, manufactured-home loans have a very elevated incidence of higher-priced lending. For 2012, 82 percent of the conventional first-lien loans used to purchase manufactured homes were higher priced.

The HMDA data also show that the incidence of higher-priced lending is related to borrower incomes and the amounts borrowed, with borrowers with lower incomes and those receiving smaller loans being more likely to obtain a higher-priced loan. For example, 54 percent of home-purchase loans were extended to borrowers with incomes under \$75,000, while such borrowers account for 71 percent of all higher-priced home-purchase loans (as shown in table 9). Data in table 10 indicate that, across loan amounts, about 17 percent of home-purchase loans were under \$100,000, whereas roughly 45 percent of higher-priced home-purchase loans were under that amount.

### Rate Spreads for Higher-Priced Loans

In 2012, the mean APOR spread reported for higher-priced first-lien conventional loans for the purchase of an owner-occupied site-built home was about 2.6 percentage points, compared with about 1.9 percentage points for higher-priced first-lien nonconventional loans used for the same purpose (as shown in table 11). Average spreads for first-lien conventional and government-backed refinance loans were 2.4 percentage points and 3.0 percentage points, respectively. (In 2011, the incidence of higher-priced lending for nonconventional refinancings was nearly the same as it was for conventional refinance loans—about 2.5 percent.)

It is worth noting that most first-lien nonconventional loans for home purchase reported as higher priced in 2012 exceeded the HMDA price-reporting thresholds by only a small amount. Specifically, nearly 75 percent of the higher-priced nonconventional first-lien home-purchase loans had reported spreads between 150 and 199 basis points above the threshold. By comparison, only about 41 percent of the comparable conventional loans

<sup>37</sup> See Freddie Mac, “Weekly Primary Mortgage Market Survey (PMMS),” webpage, [www.freddiemac.com/pmms](http://www.freddiemac.com/pmms); and Federal Financial Institutions Examination Council, “FFIEC Rate Spread Calculator,” webpage, [www.ffiec.gov/ratespread/newcalc.aspx](http://www.ffiec.gov/ratespread/newcalc.aspx).

reported as higher priced had prices this close to the margin of reporting. In contrast, the share of higher-priced nonconventional refinancing loans with prices close to the margin of reporting (23 percent) is less than that of higher-priced conventional refinancing loans with such pricing (about 52 percent).

As expected, consistent with the higher reporting threshold of junior-lien lending, higher-priced junior-lien loan products have higher mean and median APOR spreads than do higher-priced first-lien loans. Higher-priced loans for manufactured homes differ from other loan products in that they generally have the highest mean spreads. In 2012, the typical higher-priced conventional first-lien loan to purchase a manufactured home had a reported spread of about 6.0 percentage points, compared with an average spread of roughly 2.6 percentage points for comparable higher-priced loans for site-built properties.

### HOEPA Loans

The HMDA data indicate which loans are covered by the protections afforded by HOEPA. Under HOEPA, certain types of mortgage loans that have interest rates or fees above specified levels require additional disclosures to consumers and are subject to various restrictions on loan terms.<sup>38</sup> For 2012, 524 lenders reported extending 2,185 loans covered by HOEPA (as shown in table 11; data regarding the number of lenders not shown in tables). In comparison, 574 lenders reported on 2,387 loans covered by HOEPA in 2011. In the aggregate, HOEPA-related lending made up less than 0.03 percent of all of the originations of home-secured refinancings and home-improvement loans reported for 2012 (data derived from tables).<sup>39</sup> Very few HOEPA loans are sold: Among the newly issued loans covered by HOEPA in 2012, only 5 were reported as sold to a secondary-market participant.

### Lending across Population Groups and Neighborhoods

The HMDA data can be used to track changes in lending activity across different population groups and areas. In this section, we show changes in lending, from 2011 to 2012, to borrowers sorted by income, race and ethnicity, and the income or minority population characteristics of the areas where the borrowers reside.<sup>40</sup>

As noted earlier, for purposes of reporting the 2012 HMDA data and facilitating their dissemination to the public by the FFIEC, there has been a switch from using census-tract geographic designations and population and housing data from the 2000 decennial census to using a combination of data from the 2010 decennial census and the 2006–10 ACS. This switch makes it challenging to study trends in lending across geographies from 2011 to 2012 because of sharp changes in the number of tracts classified in a given category. For example, the number of census tracts in the low-income category increased 40 percent, while the share of census tracts in which minorities make up less than 10 percent of the total population decreased about 10 percentage points (data not shown in tables).<sup>41</sup>

An alternative way to measure the changes in lending across census-tract categories between 2011 and 2012 is to use the subset of census tracts that had few or no changes in

<sup>38</sup> Unlike the threshold rules used to report higher-priced loans, the threshold rules to identify HOEPA loans did not change.

<sup>39</sup> HOEPA does not apply to home-purchase loans.

<sup>40</sup> Previous articles have reviewed changes in lending in earlier years. See, for example, Avery and others, “The Mortgage Market in 2011,” in note 10.

<sup>41</sup> The share of the U.S. population in census tracts whose residents are predominantly non-Hispanic white dropped from nearly 33 percent in 2000 to about 23 percent in 2010.

their physical boundaries for the 2000 and 2010 decennial censuses (these tracts are referred to in this article as stable-boundary tracts). We categorized these tracts according to their income and minority status as used in the 2012 HMDA data and then calculated changes in lending that were free of reclassification effects for these tracts.<sup>42</sup>

### Changes in Lending across Populations, 2011 to 2012

As noted, home-purchase lending increased about 13 percent from 2011 to 2012. Virtually all population segments experienced gains, although the increase in activity was larger for some borrower groups than for others (table 12, first memo item).<sup>43</sup> Across racial or ethnic groups, the largest increase in home-purchase loan activity was experienced by Asians and non-Hispanic whites; the number of home-purchase loans extended to borrowers in each of these groups increased about 15 percent, while lending to blacks and Hispanic whites increased at a rate of less than half this value. Lending to all borrower income groups also increased, with the largest gains experienced by middle- or high-income households.

Ignoring the reclassification effect discussed earlier, we observe that the change in home-purchase lending by census-tract category between 2011 and 2012 was greatest in low-income census tracts (62 percent) and tracts with a high share of minorities in the population (67 percent in tracts with a minority share of 50 to 79 percent) (as shown in table 12, first memo item). However, focusing on the stable-boundary tracts and using a constant categorization, we find that home-purchase lending growth was actually weakest in the low-income category and in neighborhoods with a high minority share (table 12, second memo item).

Borrowers of all racial and ethnic groups and borrowers in all income segments experienced significant gains in refinance and home-improvement loan activity. Similarly, focusing on our adjusted measure of change, sizable increases in such lending were experienced across nearly all neighborhood types (as shown in table 12, second memo item).

### Use of Loan Types across Populations

Populations differ considerably in their use of different types of loan products. Most notably, black, Hispanic white, and lower-income borrowers, and those residing in areas with larger shares of minority populations, use nonconventional loans to purchase homes to a greater extent than other groups. Greater reliance on nonconventional loans may reflect the relatively low down-payment requirements of the FHA and VA lending programs, which serve the needs of borrowers who have few assets to meet down-payment and closing-cost requirements.<sup>44</sup> The patterns of product incidence could also reflect the behavior of lenders to some extent; for example, concerns have been raised about the possibility that lenders steer borrowers in certain neighborhoods toward government-backed loans. The HMDA data indicate that all groups relied a bit less on nonconventional loans to purchase homes in 2012 than in 2011.

<sup>42</sup> Stable-boundary tracts account for over 70 percent of all census tracts in the 2010 census, roughly two-thirds of the U.S. population resides in these census tracts, and they include about two-thirds of the 2012 home-purchase lending. Nonetheless, stable-boundary tracts may not be fully representative of all census tracts—in particular, they may be more reflective of slow-growing areas—so some caution should be used in drawing conclusions based on lending outcomes in this subset of census tracts.

<sup>43</sup> Changes in lending to different groups over the period 2006–10 were presented in a previous article. See Avery and others, “The Mortgage Market in 2010,” in note 16.

<sup>44</sup> Findings of the Federal Reserve Board’s Survey of Consumer Finances for 2010 indicate that liquid asset levels and financial wealth holdings for minorities and lower-income groups are substantially smaller than they are for non-Hispanic whites or higher-income populations. See Board of Governors of the Federal Reserve System, “2010 Survey of Consumer Finances,” webpage, [www.federalreserve.gov/econresdata/scf/scf\\_2010.htm](http://www.federalreserve.gov/econresdata/scf/scf_2010.htm).

**Table 12. Home lending to different populations, by characteristic of borrower and of census tract and by type and purpose of loan, 2011–12**

Percent except as noted

Characteristic of borrower and of census tract	2011				2012				Memo: Percentage change in number of loans, 2011–12	Memo: Percentage change in number of loans in unchanged census tracts, 2011–12
	Conventional	Non-conventional <sup>1</sup>	Total	Memo: Number of loans	Conventional	Non-conventional <sup>1</sup>	Total	Memo: Number of loans		
<b>A. Home purchase</b>										
<b>Borrower</b>										
<i>Race other than white only<sup>2</sup></i>										
American Indian or Alaska Native	36.5	63.5	100	9,435	40.4	59.6	100	10,252	8.7	18.7
Asian	74.3	25.7	100	104,626	78.1	21.9	100	120,681	15.3	16.6
Black or African American	21.6	78.4	100	113,591	24.6	75.4	100	119,533	5.2	7.5
Native Hawaiian or other Pacific Islander	35.1	64.9	100	6,661	39.6	60.4	100	6,811	2.3	5.1
<i>White, by ethnicity<sup>2</sup></i>										
Hispanic white	29.2	70.8	100	195,778	33.0	67.0	100	209,749	7.1	11.8
Non-Hispanic white	53.3	46.7	100	1,417,339	58.2	41.8	100	1,629,611	15.0	21.9
<i>Income ratio (percent of area median)<sup>3</sup></i>										
Low	39.9	60.1	100	254,828	44.6	55.4	100	277,827	9.0	12.7
Moderate	37.3	62.7	100	495,859	41.9	58.1	100	548,761	10.7	17.0
Middle	43.9	56.1	100	519,898	49.1	50.9	100	585,729	12.7	19.3
High	65.9	34.1	100	790,223	70.5	29.5	100	919,671	16.4	22.7
<b>Census tract of property</b>										
<i>Racial or ethnic composition (minorities as a percent of population)</i>										
Less than 10	56.4	43.6	100	767,580	61.5	38.5	100	558,225	-27.3	27.5
10–49	48.8	51.2	100	1,025,746	57.1	42.9	100	1,360,083	32.6	20.0
50–79	41.0	59.0	100	169,409	44.4	55.6	100	282,659	66.9	9.2
80–100	33.7	66.3	100	98,073	34.3	65.7	100	131,021	33.6	-4
<i>Income ratio (percent of area median)<sup>4</sup></i>										
Low	45.0	55.0	100	21,128	46.0	54.0	100	34,311	62.4	5.8
Moderate	39.8	60.2	100	206,299	43.2	56.8	100	266,401	29.1	11.0
Middle	44.3	55.7	100	1,029,115	48.9	51.1	100	1,027,212	-2	20.8
High	60.7	39.3	100	791,254	65.3	34.7	100	989,973	25.1	21.1
<b>B. Refinance</b>										
<b>Borrower</b>										
<i>Race other than white only<sup>2</sup></i>										
American Indian or Alaska Native	77.6	22.4	100	10,991	75.3	24.7	100	16,785	52.7	63.2
Asian	95.8	4.3	100	204,917	94.1	5.9	100	323,859	58.0	57.9
Black or African American	62.5	37.6	100	119,267	61.6	38.4	100	197,357	65.5	65.1
Native Hawaiian or other Pacific Islander	77.3	22.8	100	8,595	73.2	26.8	100	14,496	68.7	69.2
<i>White, by ethnicity<sup>2</sup></i>										
Hispanic white	79.0	21.0	100	176,431	75.3	24.7	100	307,846	74.5	74.9
Non-Hispanic white	87.7	12.3	100	2,826,443	85.8	14.2	100	4,282,330	51.5	58.4
<i>Income ratio (percent of area median)<sup>3</sup></i>										
Low	62.4	37.6	100	648,323	42.0	58.0	100	978,675	51.0	54.7
Moderate	87.9	12.1	100	529,877	90.4	9.6	100	829,141	56.5	62.9
Middle	89.1	10.9	100	821,444	91.0	9.0	100	1,289,873	57.0	63.4
High	93.7	6.3	100	1,840,400	94.4	5.6	100	2,803,098	52.3	57.7

Note: First-lien mortgages for owner-occupied one- to four-family homes.

<sup>1</sup> See table 4, note 1.

<sup>2</sup> Categories for race and ethnicity reflect the revised standards established in 1997 by the Office of Management and Budget. Applicants are placed under only one category for race and ethnicity, generally according to the race and ethnicity of the person listed first on the application. However, under race, the application is designated as *joint* if one applicant reported the single designation of white and the other reported one or more minority races. If the application is not joint but more than one race is reported, the following designations are made: If at least two minority races are reported, the application is designated as *two or more minority races*; if the first person listed on an application reports two races, and one is white, the application is categorized under the minority race. For loans with two or more applicants, lenders covered under the Home Mortgage Disclosure Act report data on only two.

**Table 12. Home lending to different populations, by characteristic of borrower and of census tract and by type and purpose of loan, 2011–12—continued**

Percent except as noted

Characteristic of borrower and of census tract	2011				2012				Memo: Percentage change in number of loans, 2011–12	Memo: Percentage change in number of loans in unchanged census tracts, 2011–12
	Conventional	Non-conventional <sup>1</sup>	Total	Memo: Number of loans	Conventional	Non-conventional <sup>1</sup>	Total	Memo: Number of loans		
<b>Census tract of property</b>										
<i>Racial or ethnic composition (minorities as a percent of population)</i>										
Less than 10	88.6	11.4	100	1,662,511	88.1	11.9	100	1,564,181	-5.9	57.2
10–49	85.9	14.1	100	1,825,725	84.4	15.6	100	3,435,574	88.2	58.1
50–79	83.5	16.5	100	241,937	79.2	20.8	100	637,931	163.7	67.5
80–100	77.4	22.6	100	109,871	76.0	24.0	100	263,101	139.5	71.4
<i>Income ratio (percent of area median)<sup>4</sup></i>										
Low	79.9	20.1	100	20,390	77.8	22.2	100	59,703	192.8	66.6
Moderate	80.3	19.7	100	264,107	78.0	22.0	100	538,499	103.9	69.0
Middle	83.8	16.2	100	1,779,036	81.6	18.4	100	2,484,346	39.6	63.7
High	90.7	9.3	100	1,753,976	88.3	11.7	100	2,793,475	59.3	53.0
<b>C. Home improvement<sup>5</sup></b>										
<b>Borrower</b>										
<i>Race other than white only<sup>2</sup></i>										
American Indian or Alaska Native	96.7	3.3	100	1,787	97.2	2.8	100	2,114	18.3	36.3
Asian	97.4	2.6	100	5,857	98.1	1.9	100	7,411	26.5	26.5
Black or African American	93.0	7.0	100	17,964	94.2	5.8	100	20,225	12.6	17.0
Native Hawaiian or other Pacific Islander	95.9	4.1	100	752	96.1	3.9	100	1,077	43.2	43.6
<i>White, by ethnicity<sup>2</sup></i>										
Hispanic white	95.8	4.2	100	20,733	96.0	4.0	100	21,478	3.6	13.8
Non-Hispanic white	96.6	3.4	100	227,534	96.5	3.5	100	262,461	15.4	26.8
<i>Income ratio (percent of area median)<sup>3</sup></i>										
Low	93.0	7.0	100	45,672	95.4	4.6	100	49,414	8.2	15.9
Moderate	95.1	4.9	100	61,778	96.5	3.5	100	68,330	10.6	20.7
Middle	95.2	4.8	100	75,804	96.2	3.8	100	85,884	13.3	23.9
High	96.4	3.6	100	124,873	96.9	3.1	100	144,828	16.0	27.5
<b>Census tract of property</b>										
<i>Racial or ethnic composition (minorities as a percent of population)</i>										
Less than 10	96.2	3.8	100	154,798	97.2	2.8	100	133,312	-13.9	33.2
10–49	94.8	5.2	100	116,021	96.0	4.0	100	163,078	40.6	22.9
50–79	92.8	7.2	100	17,742	95.4	4.6	100	28,077	58.3	26.1
80–100	93.4	6.6	100	19,566	95.6	4.4	100	23,989	22.6	31.2
<i>Income ratio (percent of area median)<sup>4</sup></i>										
Low	87.5	12.5	100	3,393	94.9	5.1	100	6,281	85.1	27.2
Moderate	94.3	5.7	100	35,492	96.0	4.0	100	45,966	29.5	27.9
Middle	95.7	4.3	100	170,938	96.2	3.8	100	176,138	3.0	30.0
High	96.2	3.8	100	91,865	96.8	3.2	100	115,147	25.3	23.5

<sup>3</sup> Borrower income is the total income relied on by the lender in the loan underwriting. Income is expressed relative to the median family income of the metropolitan statistical area (MSA) or statewide non-MSA in which the property being purchased is located. "Low" is less than 50 percent of the median; "moderate" is 50 percent to 79 percent (in this article, "lower income" encompasses the low and moderate categories); "middle" is 80 percent to 119 percent; and "high" is 120 percent or more.

<sup>4</sup> The income category of a census tract is the median family income of the tract relative to that of the MSA or statewide non-MSA in which the tract is located as derived from the 2000 census. "Low" is less than 50 percent of the median; "moderate" is 50 percent to 79 percent; "middle" is 80 percent to 119 percent; and "high" is 120 percent or more.

<sup>5</sup> Consists of first- and junior-lien loans and loans without a lien.

## Differences in Lending Outcomes by Race, Ethnicity, and Sex of the Borrower

One reason the Congress amended HMDA in 1989 was to enhance its value for fair lending enforcement by adding to the items reported the disposition of applications for loans and the race, ethnicity, and sex of applicants. A similar motivation underlay the Federal Reserve's decision to add pricing data for higher-priced loans in 2004, although such data serve other purposes, including to help identify lenders active in the higher-cost or higher-risk segments of the mortgage market and provide information on the volume and locations of borrowers receiving higher-priced loans.

Over the years, analyses of HMDA data have consistently found substantial differences in the incidence of higher-priced lending and in application denial rates across racial and ethnic lines, differences that cannot be fully explained by factors included in the HMDA data.<sup>45</sup> Analyses also have found that differences across groups in mean APR spreads paid by those with higher-priced loans were generally small.<sup>46</sup> Here we examine the 2012 HMDA data to determine the extent to which these differences persist.

The analysis here presents aggregated lending outcomes across all reporting institutions. Patterns for any given financial institution may differ from those shown, and, for any given financial institution, relationships may vary by loan product, geographic market, and loan purpose. Further, although the HMDA data include some detailed information about each mortgage transaction, many key factors that are considered by lenders in credit underwriting and pricing are not included. Accordingly, it is not possible to determine from HMDA data alone whether racial and ethnic pricing disparities reflect illegal discrimination.

Comparisons of outcomes (for both loan pricing and denial rates) are shown for each racial, ethnic, or gender group. The analysis here distinguishes among three loan purposes (home purchase, refinance, and home improvement) and between two broad types of lending (conventional and nonconventional), reflecting the different underwriting standards and fees associated with these two broad loan product categories.

### Incidence of Higher-Priced Lending by Race, Ethnicity, and Sex

Overall, the reported incidence of higher-priced lending was about 50 basis points lower in 2012 than in 2011 (data for 2011 not shown in tables). Pricing relationships across population groups observed in the 2012 HMDA data are very similar to those found in the 2011 data. The 2012 HMDA data indicate that black and Hispanic-white borrowers are more likely, and Asian borrowers less likely, to obtain conventional loans with prices above the HMDA price-reporting thresholds than are non-Hispanic white borrowers. These relationships hold both for home-purchase and refinance lending and for nonconventional loans (tables 13.A and 13.B). For example, for conventional home-purchase lending in 2012, the incidence of higher-priced lending was 6.7 percent for black borrowers, 7.4 percent for Hispanic white borrowers, and 1.3 percent for Asians, compared with 3.2 percent for non-Hispanic white borrowers. With regard to the gender of applicants, we find relatively small dif-

<sup>45</sup> See Avery, Brevoort, and Canner, "The 2006 HMDA Data"; Avery, Brevoort, and Canner, "Higher-Priced Home Lending and the 2005 HMDA Data"; and Avery, Canner, and Cook, "New Information Reported under HMDA"; all three references are in note 35.

<sup>46</sup> See, for example, Andrew Haughwout, Christopher Mayer, and Joseph Tracy (2009), "Subprime Mortgage Pricing: The Impact of Race, Ethnicity, and Gender on the Cost of Borrowing," Federal Reserve Bank of New York Staff Reports 368 (New York: Federal Reserve Bank of New York, April), [www.newyorkfed.org/research/staff\\_reports/sr368.pdf](http://www.newyorkfed.org/research/staff_reports/sr368.pdf); and Marsha J. Courchane (2007), "The Pricing of Home Mortgage Loans to Minority Borrowers: How Much of the APR Differential Can We Explain?" *Journal of Real Estate Research*, vol. 29 (4), pp. 399-439.

**Table 13. Incidence of higher-priced lending, mean and median average prime offer rate spreads for loans, and denial rates, by type and purpose of application and by race, ethnicity, and sex of applicant, 2012****A. Conventional loan application**

Race, ethnicity, and sex	Incidence of higher-priced lending (percent)		APOR spread (percentage points)				Denial rate (percent)	
	2011	2012	2011		2012		2011	2012
			Mean	Median	Mean	Median		
<b>Home purchase</b>								
<b>Race other than white only<sup>1</sup></b>								
American Indian or Alaska Native	8.06	8.04	2.95	2.51	2.94	2.59	26.0	25.5
Asian	1.32	1.27	2.41	2.11	2.37	2.18	15.3	14.5
Black or African American	7.92	6.70	2.49	1.96	2.70	2.10	33.0	32.0
Native Hawaiian or other Pacific Islander	2.83	1.74	2.25	1.86	2.59	2.08	21.6	20.4
Two or more minority races	2.28	2.01	2.68	2.33	2.27	1.85	25.6	27.9
Joint	2.98	2.27	2.50	2.14	2.56	2.13	13.1	11.9
Missing	1.69	1.28	2.30	1.89	2.19	1.85	20.1	18.0
<b>White, by ethnicity<sup>1</sup></b>								
Hispanic white	9.23	7.39	2.52	2.19	2.75	2.51	21.9	20.5
Non-Hispanic white	3.91	3.17	2.49	2.15	2.54	2.17	12.4	11.6
<b>Sex</b>								
One male	4.11	3.37	2.50	2.14	2.59	2.20	17.0	15.8
One female	3.78	2.98	2.42	2.01	2.48	2.11	16.7	15.4
Two males	7.20	5.87	2.56	2.37	2.55	2.29	18.7	17.2
Two females	4.98	3.82	2.52	2.13	2.62	2.22	18.5	16.2
<b>Refinance</b>								
<b>Race other than white only<sup>1</sup></b>								
American Indian or Alaska Native	3.21	2.56	2.79	2.18	2.73	2.16	36.2	32.7
Asian	.31	.28	2.43	1.97	1.99	1.71	19.3	17.1
Black or African American	4.25	2.86	2.99	2.08	2.62	1.98	40.5	34.7
Native Hawaiian or other Pacific Islander	1.18	.90	2.42	1.99	2.32	1.82	31.9	29.2
Two or more minority races	.85	1.03	1.98	1.79	2.15	1.68	33.0	30.4
Joint	1.04	.81	2.53	2.03	2.39	1.90	18.7	16.2
Missing	.75	.74	2.53	1.84	2.06	1.74	29.3	25.5
<b>White, by ethnicity<sup>1</sup></b>								
Hispanic white	2.74	1.87	2.73	2.11	2.51	2.00	30.1	26.1
Non-Hispanic white	1.65	1.22	2.54	2.07	2.42	2.00	20.0	17.4
<b>Sex</b>								
One male	1.83	1.39	2.59	2.06	2.40	1.94	26.7	23.0
One female	2.05	1.49	2.67	2.04	2.44	1.96	25.8	22.6
Two males	2.04	1.40	2.55	2.15	2.49	2.02	24.5	21.7
Two females	2.14	1.27	2.70	2.05	2.72	1.98	24.0	20.0

Note: First-lien mortgages for owner-occupied, one- to four-family, site-built properties; excludes business loans. Business-related loans are those for which the lender reported that the race, ethnicity, and sex of the applicant or co-applicant are "not applicable." For definition of higher-priced lending, see text and table 9, note 3. Loans taken out jointly by a male and female are not shown here because they would not be directly comparable with loans taken out by one borrower or by two borrowers of the same sex. For definition of average prime offer rate (APOR) spread, see table 11, note 4.

<sup>1</sup> See table 12, note 2.

**Table 13. Incidence of higher-priced lending, mean and median average prime offer rate spreads for loans, and denial rates, by type and purpose of application and by race, ethnicity, and sex of applicant, 2012**

**B. Nonconventional loan application**

Race, ethnicity, and sex	Incidence of higher-priced lending (percent)		APOR spread (percentage points)				Denial rate (percent)	
	2011	2012	2011		2012		2011	2012
			Mean	Median	Mean	Median		
<b>Home purchase</b>								
<b>Race other than white only<sup>1</sup></b>								
American Indian or Alaska Native	2.78	2.35	1.78	1.65	1.84	1.68	17.6	18.4
Asian	2.08	1.87	2.10	1.74	1.87	1.72	18.9	20.2
Black or African American	4.16	4.86	1.94	1.74	1.86	1.73	23.3	23.9
Native Hawaiian or other Pacific Islander	2.67	2.66	1.97	1.83	1.95	1.80	17.6	18.4
Two or more minority races	.88	1.15	2.07	1.69	1.74	1.71	21.0	24.5
Joint	1.76	1.59	1.96	1.76	1.97	1.73	13.2	15.1
Missing	2.89	2.82	2.21	1.74	1.89	1.72	21.8	22.1
<b>White, by ethnicity<sup>1</sup></b>								
Hispanic white	4.52	4.41	1.88	1.74	1.87	1.71	18.9	18.7
Non-Hispanic white	2.35	2.53	1.96	1.77	1.95	1.73	13.2	13.6
<b>Sex</b>								
One male	2.91	3.09	1.93	1.73	1.90	1.72	16.6	17.1
One female	3.88	4.20	1.99	1.75	1.89	1.73	16.9	17.0
Two males	2.95	2.90	1.90	1.76	1.81	1.71	20.4	20.1
Two females	3.25	3.33	1.85	1.71	1.81	1.70	19.5	18.0
<b>Refinance</b>								
<b>Race other than white only<sup>1</sup></b>								
American Indian or Alaska Native	5.01	2.86	2.49	2.51	2.99	3.22	35.4	27.7
Asian	3.98	1.71	2.35	2.28	2.93	3.04	32.5	22.2
Black or African American	10.74	5.48	2.63	2.57	3.16	3.31	38.8	29.4
Native Hawaiian or other Pacific Islander	3.45	2.59	2.44	2.34	2.97	3.09	30.3	24.6
Two or more minority races	4.53	2.56	2.25	2.06	3.39	3.37	39.6	30.6
Joint	2.76	1.41	2.37	2.19	2.96	2.60	24.7	18.1
Missing	2.31	.92	3.33	1.97	2.37	1.93	42.6	29.6
<b>White, by ethnicity<sup>1</sup></b>								
Hispanic white	6.90	3.08	2.49	2.35	2.64	2.70	30.4	22.3
Non-Hispanic white	5.93	2.92	2.44	2.28	2.98	3.17	28.7	19.6
<b>Sex</b>								
One male	4.72	2.36	2.60	2.29	2.92	3.09	33.6	23.8
One female	12.04	6.00	2.63	2.46	3.12	3.25	36.1	25.5
Two males	2.78	1.54	2.17	2.04	2.61	2.70	30.9	22.0
Two females	4.59	2.20	2.30	2.24	2.71	2.90	33.3	21.7

Note: See notes to table 13.A.

ferences in the incidence of higher-priced lending between single applicants of different genders.

### **Rate Spreads by Race, Ethnicity, and Sex**

The 2012 data indicate that, among borrowers with higher-priced loans, the gross APOR spreads are similar across groups. This result holds for both conventional (table 13.A) and nonconventional lending (table 13.B). For example, for conventional home-purchase loans for owner-occupied properties, the gross mean APOR spread was 2.70 percentage points for black borrowers and 2.75 percentage points for Hispanic white borrowers, while it was 2.54 percentage points for non-Hispanic white borrowers and 2.37 percentage points for Asian borrowers. Gross differences across groups in APOR spreads for refinancings were about the same as for home-purchase lending. With regard to the gender of applicants, the 2012 data reveal only small differences in the gross APR spreads between single applicants of different genders.

### **Denial Rates by Race, Ethnicity, and Sex**

HMDA data in previous years have consistently shown that denial rates vary across applicants grouped by race or ethnicity. This continues to be the case in 2012. As in past years, blacks and Hispanic whites had notably higher gross denial rates in 2012 than non-Hispanic whites, while the differences between Asians and non-Hispanic whites generally were fairly small by comparison (as shown in tables 13.A and 13.B). For example, the denial rates for conventional home-purchase loans were 32 percent for blacks, 20.5 percent for Hispanic whites, 14.5 percent for Asians, and 11.6 percent for non-Hispanic whites. Each of these rates were little changed from 2011. The pattern was about the same for nonconventional home-purchase lending, although the gap in gross denial rates between blacks or Hispanic whites and non-Hispanic whites was notably smaller than for conventional home-purchase loans.

### **Some Limitations of the Data in Assessing Fair Lending Compliance**

Previous research and experience gained in the fair lending enforcement process show that unexplained differences in the incidence of higher-priced lending and in denial rates among racial or ethnic groups stem, at least in part, from credit-related factors not available in the HMDA data, such as credit history (including credit scores), loan-to-value ratios, and differences in loan characteristics. Differential costs of loan origination and the competitive environment also may bear on the differences in pricing, as may differences across populations in credit-shopping activities.

Despite these limitations, the HMDA data play an important role in fair lending enforcement. The data are regularly used by bank examiners to facilitate the fair lending examination and enforcement processes. When examiners for the federal banking agencies evaluate an institution's fair lending risk, they analyze HMDA price data and loan application outcomes in conjunction with other information and risk factors that can be drawn directly from loan files or electronic records maintained by lenders, as directed by the Interagency Fair Lending Examination Procedures.<sup>47</sup> The availability of broader information allows the examiners to draw firm conclusions about institution compliance with the fair lending laws.

It is important to keep in mind that the HMDA data, as currently constituted, can be used only to detect differences in pricing across groups for loans with APRs above the reporting

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<sup>47</sup> The Interagency Fair Lending Examination Procedures are available at [www.ffiec.gov/PDF/fairlend.pdf](http://www.ffiec.gov/PDF/fairlend.pdf).

threshold; pricing differences may exist among loans below the threshold. This gap in the loan pricing information will be addressed when the CFPB implements the expanded data reporting requirements set forth in the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act), including the provision requiring the reporting of rate spread information for all loans.

### Analysis of Matched HMDA and Credit Bureau Data

In this section, we present the results from an analysis using an enhanced HMDA data set in which first-lien, owner-occupant home-purchase and refinance mortgages reported in the HMDA data have been matched to borrowers' consumer credit record information.<sup>48</sup> The matched data set provides an opportunity to explore many aspects of home lending that the HMDA data alone cannot address. Chief among these are the credit circumstances (for example, credit scores, nonmortgage debts, and monthly payments on loans) of mortgage borrowers prior to and at the time of loan origination and their subsequent payment performance on their mortgages and other loans.

Neither the HMDA data nor the credit record data include personal identifying information, but borrowers in the two data sets can be matched based on the mortgage loan information common to both data sets (details of the matching process are provided in [appendix B](#), "Matching HMDA Records with Credit Bureau Records"). For this article, we present results from the matched 2006 and 2010 HMDA loan records; the process of matching data for additional years is ongoing. The 2006 matched data reflect lending activity at the height of the most recent housing boom, while the 2010 data reflect the far more subdued market conditions that were still largely present in 2012. The advantage of studying the 2010 data is that we are able to track payment performance over the subsequent 24 months.

The credit records available for matching come from the Federal Reserve Bank of New York Consumer Credit Panel/Equifax (CCP) data.<sup>49</sup> The CCP is a 5 percent, nationally representative sample of all individuals with a credit record and a valid Social Security number. Furthermore, the CCP data are a quarterly panel, tracking the same individuals over time.<sup>50</sup>

Because the credit record data are a 5 percent sample of the full population, only a small fraction of HMDA loan records will be represented in the CCP. That said, because the HMDA data consist of several million loan records, the resulting matched data set is still quite large. For reasons discussed in [appendix B](#), we attempted to match only those mortgages for owner-occupied properties in MSAs. Of such loans, we matched about 300,000 in each year, which is about 4 percent of all eligible HMDA loans and implies a match rate of about 60 percent (see [appendix B](#) for details of the calculation).

<sup>48</sup> For further information about credit records, see Robert B. Avery, Paul S. Calem, Glenn B. Canner, and Raphael W. Bostic (2003), "An Overview of Consumer Data and Credit Reporting," *Federal Reserve Bulletin*, vol. 89 (February), pp. 47–73, [www.federalreserve.gov/pubs/bulletin/2003/0203lead.pdf](http://www.federalreserve.gov/pubs/bulletin/2003/0203lead.pdf).

<sup>49</sup> For further details, see Donghoon Lee and Wilbert van der Klaauw (2010) "An Introduction to the FRBNY Consumer Credit Panel," Federal Reserve Bank of New York Staff Reports 479 (New York: Federal Reserve Bank of New York, November), [www.newyorkfed.org/research/staff\\_reports/sr479.html](http://www.newyorkfed.org/research/staff_reports/sr479.html).

<sup>50</sup> The sampling approach is designed to generate the same entry and exit behavior as is present in the population, with young individuals and immigrants entering the sample and deceased individuals and emigrants leaving the sample each quarter at the same rate as in the U.S. population, such that each quarterly snapshot continues to be nationally representative.

Although the 60 percent implied match rate is well below 100 percent, a comparison of the characteristics of the matched loans with the characteristics of the full HMDA data indicates that the matched loans provide a good representation of all HMDA records targeted for matching (table B.1, in appendix B).

### **Credit Characteristics and Performance by Borrower, Lender, and Loan Type**

The HMDA data provide unique information on the race, ethnicity, and income of mortgage borrowers; the type of lender and loan purchaser; and loan pricing. Matching to the credit record data adds information on the credit profiles of borrowers. In addition, because of the panel nature of the CCP, we are able to track loans over time to measure performance. We report statistics derived from the credit records by various borrower, lender, and loan attributes identified from the HMDA data for the 2006 and 2010 sets of matched home-purchase and refinance loans (tables 14 and 15). Because the CCP samples individuals rather than mortgages, we weighted the data accordingly to account for the fact that joint mortgages (mortgages that have more than one borrower) have roughly twice the likelihood of being sampled in the CCP.

### **Credit Scores**

Credit scores are a summary metric of the relative credit risk posed by current and prospective borrowers. Generic credit scores (sometimes referred to as bureau or credit history scores) are derived using credit records to predict the likelihood of default based on individuals' past experiences. Notably, credit scores rank-order individuals by the credit risk they pose within a given economic environment; they do not imply any particular future probability of default.<sup>51</sup>

The credit score statistics shown in tables 14 and 15 are measured at the end of the quarter prior to mortgage origination.<sup>52</sup> Credit scores from this date were selected to better align with the information a loan underwriter may have been considering when evaluating the home loan application. Overall, the data show that credit scores differ significantly across various categories of borrowers and loans, and that the average credit scores of borrowers in 2010 were significantly higher than in 2006.

The first five rows of tables 14.A and 14.B show that in 2006, Asian borrowers had the highest average scores, while black mortgage borrowers had the lowest scores. Among home-purchase loans, Asian borrowers had an average score of 723, compared with 640 for black borrowers, and over 40 percent of black borrowers had a score below 620—a score threshold often associated with subprime lending—while just 7 percent of Asian borrowers fell below that level.<sup>53</sup> Credit scores also varied by the income and neighborhood character-

<sup>51</sup> For a discussion of the reasons that credit scores do not predict the future default rate for any particular score, see Board of Governors of the Federal Reserve System (2007), *Report to the Congress on Credit Scoring and Its Effects on the Availability and Affordability of Credit* (Washington: Board of Governors, August), [www.federalreserve.gov/boarddocs/rptcongress/creditscore/default.htm](http://www.federalreserve.gov/boarddocs/rptcongress/creditscore/default.htm).

<sup>52</sup> The credit score included in the CCP is generated from the Equifax Risk Score 3.0 model. The Equifax Risk Score 3.0 is a credit score produced from a general-purpose risk model that predicts the likelihood an individual will become 90 days or more delinquent on any account within 24 months after the score is calculated. The Equifax Risk Score 3.0 ranges from 280 to 850, with a higher score corresponding to lower relative risk (for more information, see [www.equifax.com](http://www.equifax.com)). Although the lender may have used a different score to underwrite the loan, it is likely that the scores used here are highly correlated with the scores used in underwriting.

<sup>53</sup> One drawback of our matched data set is that we observe the credit record information and credit score for only one of the two borrowers in a joint mortgage. Underwriters may select the lower of the two credit scores for the two applicants, whereas we match only one randomly selected applicant. Thus, for joint mortgages, the credit scores we observe may overstate the credit score used in underwriting to the extent that joint applicants

**Table 14. Credit circumstances of mortgage borrowers, by purpose of loan and by demographic, lender, and loan characteristics, 2006****A. Home purchase**

Percent except as noted

Characteristic and status	Credit circumstances <sup>1</sup>									N
	Credit score		Consumer debt (dollars)		Back-end PTI		First-time home-buyer	Loan performance	Performance of delinquent mortgage borrowers on nonmortgage debt	
	Mean (points)	Share less than 620	Mean	Median	Median	Share greater than 43 percent				
<b>Borrower</b>										
<b>Minority status<sup>2</sup></b>										
Asian	723	7	16,057	6,263	33	23	51	5.8	53	5,692
Black or African American	640	43	18,862	11,155	37	33	58	23.3	58	9,678
Hispanic white	673	23	16,841	8,850	37	30	51	21.4	54	11,927
Non-Hispanic white	712	13	20,442	12,256	33	25	40	6.7	57	89,673
All others <sup>3</sup>	701	18	19,946	11,620	34	26	42	11.0	56	14,534
<b>Income ratio (percent of area median)<sup>4</sup></b>										
LMI	677	26	12,343	6,539	39	39	62	12.3	55	30,845
Middle	692	20	17,638	12,088	35	26	49	10.2	58	34,663
High	722	10	25,485	15,538	30	17	28	8.3	56	61,705
<b>Census tract of property</b>										
<b>Racial or ethnic composition (minorities as a percent of population)</b>										
Less than 10	713	14	20,267	12,399	33	24	36	6.9	57	45,842
10–80	703	16	20,204	11,724	34	27	43	9.5	57	79,844
More than 80	659	32	15,383	7,193	36	28	61	23.0	54	5,814
<b>Income ratio (percent of area median)<sup>5</sup></b>										
LMI	670	27	15,698	8,449	35	28	60	16.9	53	17,849
Middle	694	19	18,907	11,661	35	27	47	10.8	57	63,485
High	724	10	22,427	12,806	32	24	31	6.1	59	50,125
<b>CRA assessment area<sup>6</sup></b>										
Outside of assessment area	700	17	20,202	12,073	34	26	43	10.9	55	46,702
LMI borrower or census tract	675	26	13,747	7,628	38	35	60	15.0	52	13,987
Within assessment area	718	11	19,459	10,279	33	24	42	5.0	55	41,717
LMI borrower or census tract	696	17	13,966	6,656	38	34	59	7.2	54	13,178

Note: First-lien mortgages for owner-occupied one- to four-family homes in metropolitan statistical areas.

<sup>1</sup> Credit score is the Equifax Risk Score 3.0 in the quarter before origination; consumer debt is the borrower's nonmortgage debt before origination; back-end payment-to-income (PTI) ratio is calculated using nonmortgage payments prior to origination plus mortgage payments after origination; first-time borrowers are those with no record of ever having a mortgage; and loan performance measure is the share of borrowers who were more than 60 days past due on their mortgages over a two-year period since origination.

<sup>2</sup> Borrowers are placed under only one category according to the race and ethnicity of the person listed first on the application.

<sup>3</sup> All others consist of American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, and applicants for whom race or ethnicity was not reported.

<sup>4</sup> See table 12, note 3.

<sup>5</sup> See table 12, note 4.

<sup>6</sup> Includes only loans originated by depository institutions and their subsidiaries or affiliates.

istics of borrowers. Scores tended to be lower among LMI borrowers (those with incomes of less than 80 percent of area median family income) and those living in or moving into LMI neighborhoods (census tracts with median family income less than 80 percent of area median family income) or predominantly minority neighborhoods.

have significantly different credit scores. Moreover, to the extent that joint status is correlated with other borrower and loan characteristics, the differences shown in tables 14 and 15 may be exacerbated. For example, in 2006, 27 percent of black home-purchase borrowers had a co-applicant, compared with nearly 48 percent for non-Hispanic whites. That said, an examination of individually held mortgages indicates very similar score differences across race groups, suggesting that the results likely would be quite similar even if we observed both borrowers on joint mortgages.

**Table 14. Credit circumstances of mortgage borrowers, by purpose of loan and by demographic, lender, and loan characteristics, 2006—continued****A. Home purchase—continued**

Percent except as noted

Characteristic and status	Credit circumstances <sup>1</sup>									
	Credit score		Consumer debt (dollars)		Back-end PTI		First-time home-buyer	Loan performance	Performance of delinquent mortgage borrowers on nonmortgage debt	N
	Mean (points)	Share less than 620	Mean	Median	Median	Share greater than 43 percent				
<b>Type of lender</b>										
Depository	713	12	20,162	11,103	33	25	41	6.7	55	56,522
Subsidiary or affiliate of depository	700	17	19,338	11,399	34	26	45	10.6	55	31,897
Credit union	728	7	18,621	11,642	33	25	41	2.1	54	3,100
Independent mortgage company	685	24	19,486	12,126	35	28	45	14.6	58	39,985
<b>Type of loan</b>										
Conventional	707	15	19,771	11,281	34	26	41	9.9	56	117,707
Higher priced	624	50	18,681	11,190	36	30	56	31.0	58	21,355
Not higher priced	727	6	20,047	11,305	33	25	37	4.5	53	96,352
FHA	643	37	17,526	11,741	36	26	67	13.5	57	9,248
VA, RHS, or FSA	678	23	22,644	17,691	37	32	57	6.7	62	4,549
<b>Type of purchasing institution</b>										
Not sold	708	15	20,637	10,942	33	25	42	8.6	57	24,900
Fannie Mae or Freddie Mac	725	7	18,550	10,676	33	25	37	4.1	55	36,598
Ginnie Mae or Farmer Mac	656	32	20,097	14,661	36	29	62	9.8	59	4,519
Private securitization	661	34	20,230	11,026	35	26	48	24.4	54	5,983
Bank or affiliate	707	14	20,501	12,006	34	26	43	9.0	53	22,316
Life insurance company or mortgage bank	682	25	19,151	11,840	34	26	45	15.0	57	13,092
Other	684	23	19,875	12,200	35	27	48	14.6	58	24,096
<b>All</b>	<b>701</b>	<b>17</b>	<b>19,714</b>	<b>11,504</b>	<b>34</b>	<b>26</b>	<b>43</b>	<b>10.0</b>	<b>56</b>	<b>131,504</b>

LMI: Low and moderate income; FHA: Federal Housing Administration; VA: Department of Veterans Affairs; RHS: Rural Housing Service; FSA: Farm Service Agency.

Source: FFIEC HMDA data matched to FRBNY Consumer Credit Panel/Equifax.

Credit scores differed by type of lender, type of loan, and secondary-market purchaser in 2006. The differences in credit scores along these dimensions reflect a wide range of factors, including differences in the populations served, product offerings, and underwriting standards. Among lenders, credit union borrowers had the highest average scores. Borrowers who obtained loans from independent mortgage companies had the lowest scores, especially refinance borrowers, for whom the average score was under 660. The elevated incidence of borrowers with lower credit scores from independent mortgage companies in the 2006 matched data is consistent with other research indicating that such lenders tended to originate larger shares of subprime and higher-priced credit than other institutions during this period.<sup>54</sup>

Across loan types, scores were lowest for borrowers who obtained conventional higher-priced loans, with average scores of just 624 and 610 for home-purchase and refinance loans, respectively. Finally, loans held in portfolio and loans sold to Fannie Mae and Freddie Mac had the highest scores. In contrast, those sold into private securitization (frequently subprime loans) and to Ginnie Mae—predominantly FHA and VA loans—and Farmer Mac had the lowest scores.

<sup>54</sup> See Avery, Brevoort, and Canner, “The 2007 HMDA Data,” in note 35.

**Table 14. Credit circumstances of mortgage borrowers, by purpose of loan and by demographic, lender, and loan characteristics, 2006****B. Refinance**

Percent except as noted

Characteristic and status	Credit circumstances <sup>1</sup>								
	Credit score		Consumer debt (dollars)		Back-end PTI		Loan performance	Performance of delinquent mortgage borrowers on nonmortgage debt	N
	Mean (points)	Share less than 620	Mean	Median	Median	Share greater than 43 percent			
<b>Borrower</b>									
<b>Minority status<sup>2</sup></b>									
Asian	714	11	24,584	13,134	34	29	9.7	49	4,897
Black or African American	635	44	24,911	15,792	39	40	16.6	56	15,524
Hispanic white	667	27	20,683	12,342	37	35	17.2	55	16,526
Non-Hispanic white	695	19	26,769	17,040	35	31	9.2	55	102,078
All others <sup>3</sup>	671	29	24,972	15,884	36	35	13.9	55	27,123
<b>Income ratio (percent of area median)<sup>4</sup></b>									
LMI	663	32	15,883	9,907	43	50	11.9	52	38,845
Middle	674	27	22,419	15,918	37	34	11.7	55	45,447
High	699	18	34,074	22,550	31	21	11.5	57	74,229
<b>Census tract of property</b>									
<b>Racial or ethnic composition (minorities as a percent of population)</b>									
Less than 10	693	20	27,048	17,271	35	31	9.1	53	51,225
10–80	683	24	25,686	16,272	36	33	12.0	56	99,491
More than 80	648	37	20,748	11,978	37	37	16.0	55	15,424
<b>Income ratio (percent of area median)<sup>5</sup></b>									
LMI	654	34	20,561	12,752	37	36	15.6	54	28,940
Middle	678	25	24,796	16,177	36	34	11.9	55	83,776
High	707	16	29,880	18,390	34	30	8.7	56	53,417
<b>CRA assessment area<sup>6</sup></b>									
Outside of assessment area	678	25	26,391	17,219	37	35	11.8	54	58,553
LMI borrower or census tract	659	32	19,163	12,477	42	47	13.0	52	19,959
Within assessment area	712	12	25,307	15,164	33	29	5.3	54	48,376
LMI borrower or census tract	698	16	17,732	10,469	38	39	5.9	53	15,018
<b>Type of lender</b>									
Depository	705	14	25,538	15,475	33	29	7.3	54	65,646
Subsidiary or affiliate of depository	674	26	26,493	17,609	38	38	11.5	55	41,283
Credit union	725	8	25,131	16,527	34	31	1.8	56	5,111
Independent mortgage company	658	34	24,986	15,716	37	35	17.4	56	54,108
<b>Type of loan</b>									
Conventional	684	23	25,628	16,050	36	33	11.5	55	161,497
Higher priced	610	56	25,413	16,001	39	40	26.3	56	45,709
Not higher priced	715	9	25,719	16,080	34	30	5.3	53	115,788
FHA	630	44	23,440	17,884	39	39	13.7	56	4,077
VA, RHS, or FSA	651	36	25,682	21,916	39	37	10.1	63	574
<b>Type of purchasing institution</b>									
Not sold	690	21	26,362	16,525	34	30	9.5	55	45,086
Fannie Mae or Freddie Mac	717	9	23,583	15,309	35	31	3.9	52	35,460
Ginnie Mae or Farmer Mac	638	41	23,533	17,805	38	38	11.4	58	1,575
Private securitization	638	44	25,977	15,636	39	39	21.4	55	12,476
Bank or affiliate	687	21	26,280	16,749	36	34	10.8	54	26,384
Life insurance company or mortgage bank	657	35	25,395	16,062	36	34	16.8	56	21,187
Other	664	32	26,272	16,072	37	35	17.0	55	23,980
<b>All</b>	<b>682</b>	<b>24</b>	<b>25,576</b>	<b>16,114</b>	<b>36</b>	<b>33</b>	<b>11.6</b>	<b>55</b>	<b>166,148</b>

Note: See notes to table 14.A.

**Table 15. Credit circumstances of mortgage borrowers, by purpose of loan and by demographic, lender, and loan characteristics, 2010****A. Home purchase**

Percent except as noted

Characteristic and status	Credit circumstances <sup>1</sup>									
	Credit score		Consumer debt (dollars)		Back-end PTI		First-time home-buyer	Loan performance	Performance of delinquent mortgage borrowers on nonmortgage debt	N
	Mean (points)	Share less than 620	Mean	Median	Median	Share greater than 43 percent				
<b>Borrower</b>										
<b>Minority status<sup>2</sup></b>										
Asian	745	2.6	11,564	2,430	31	20	63	1.3	45	4,903
Black or African American	677	21.3	19,233	11,219	38	34	69	9.6	54	4,706
Hispanic white	701	11.2	13,804	6,861	37	32	68	4.4	54	6,816
Non-Hispanic white	734	5.4	18,415	9,751	31	21	48	2.4	52	59,764
All others <sup>3</sup>	732	6.3	18,064	8,878	32	21	51	2.7	48	9,180
<b>Income ratio (percent of area median)<sup>4</sup></b>										
LMI	707	10.7	11,661	5,817	38	34	70	4.7	55	26,954
Middle	726	6.8	17,437	10,689	32	20	54	2.8	50	22,226
High	752	2.8	24,098	12,407	26	12	32	1.2	45	35,422
<b>Census tract of property</b>										
<b>Racial or ethnic composition (minorities as a percent of population)</b>										
Less than 10	736	5.4	18,690	9,916	31	20	43	2.4	53	29,660
10–80	726	7.2	17,318	8,680	33	23	55	3.1	52	52,036
More than 80	701	11.8	14,606	5,910	37	31	77	5.6	48	3,661
<b>Income ratio (percent of area median)<sup>5</sup></b>										
LMI	707	10.4	14,890	6,956	34	25	71	4.1	54	9,915
Middle	720	8.1	16,924	9,361	33	24	57	3.5	51	40,667
High	745	4.1	19,456	9,256	31	20	40	1.9	52	34,754
<b>CRA assessment area<sup>6</sup></b>										
Outside of assessment area	726	7.3	18,525	9,992	32	22	50	3.1	53	17,092
LMI borrower or census tract	705	11.6	13,350	7,087	37	33	69	5.0	54	6,043
Within assessment area	734	5.7	17,603	7,884	31	20	51	2.3	52	36,522
LMI borrower or census tract	715	8.7	12,486	5,393	36	28	69	3.5	56	12,995
<b>Type of lender</b>										
Depository	732	6.1	17,892	8,425	31	20	51	2.4	52	43,977
Subsidiary or affiliate of depository	728	6.6	17,919	9,033	32	23	52	2.9	52	9,637
Credit union	754	2.5	16,167	7,939	27	14	43	.5	28	2,788
Independent mortgage company	720	8.3	17,362	9,886	35	26	55	3.9	52	28,967
<b>Type of loan</b>										
Conventional	764	1.2	15,673	4,734	27	13	37	.5	49	39,373
Higher priced	699	15.8	23,365	10,242	30	24	45	3.3	70	600
Not higher priced	765	1.0	15,557	4,685	27	13	37	.5	46	38,773
FHA	699	11.2	18,653	11,701	37	30	65	5.0	52	36,569
VA, RHS, or FSA	703	11.4	21,559	15,062	35	25	57	4.6	52	9,427
<b>Type of purchasing institution</b>										
Not sold	738	5.8	19,938	7,652	30	19	46	2.0	52	11,771
Fannie Mae or Freddie Mac	766	.6	13,931	4,355	27	13	38	.4	38	16,816
Ginnie Mae or Farmer Mac	701	11.6	19,391	12,397	36	27	63	4.3	56	14,452
Private securitization	729	7.5	17,534	8,918	31	20	54	3.9	41	411
Bank or affiliate	721	7.7	18,027	9,924	34	25	55	3.7	52	21,162
Life insurance company or mortgage bank	723	7.3	18,127	10,035	34	25	52	3.3	45	7,421
Other	719	8.3	17,426	10,148	34	25	56	3.9	53	13,336
<b>All</b>	<b>728</b>	<b>6.8</b>	<b>17,654</b>	<b>9,023</b>	<b>32</b>	<b>22</b>	<b>52</b>	<b>3.0</b>	<b>52</b>	<b>85,369</b>

Note: See notes to table 14.A.

**Table 15. Credit circumstances of mortgage borrowers, by purpose of loan and by demographic, lender, and loan characteristics, 2010****B. Refinance**

Percent except as noted

Characteristic and status	Credit circumstances <sup>1</sup>								
	Credit score		Consumer debt (dollars)		Back-end PTI		Loan performance	Performance of delinquent mortgage borrowers on nonmortgage debt	N
	Mean (points)	Share less than 620	Mean	Median	Median	Share greater than 43 percent			
<b>Borrower</b>									
<b>Minority status<sup>2</sup></b>									
Asian	784	1	12,369	3,089	26	15	.8	26	11,978
Black or African American	728	7	24,621	17,072	33	28	3.3	39	5,794
Hispanic white	754	3	18,432	10,667	32	26	2.3	33	7,477
Non-Hispanic white	773	1	19,315	9,993	26	15	1.2	35	164,346
All others <sup>3</sup>	772	2	19,472	9,368	27	17	1.6	35	27,502
<b>Income ratio (percent of area median)<sup>4</sup></b>									
LMI	760	3	12,329	5,866	36	34	2.0	38	36,240
Middle	769	2	16,457	9,367	29	16	1.3	34	48,140
High	783	1	22,479	11,000	22	8	.6	30	115,078
<b>Census tract of property</b>									
<b>Racial or ethnic composition (minorities as a percent of population)</b>									
Less than 10	772	1	19,827	10,644	26	14	1.2	37	93,427
10–80	772	2	18,583	8,842	27	17	1.4	34	118,479
More than 80	752	4	17,387	8,801	33	28	2.2	32	5,174
<b>Income ratio (percent of area median)<sup>5</sup></b>									
LMI	753	4	18,341	9,671	30	21	2.5	37	14,894
Middle	765	2	19,103	10,627	28	17	1.6	34	95,198
High	781	1	19,159	8,637	25	14	.9	36	106,956
<b>CRA assessment area<sup>6</sup></b>									
Outside of assessment area	769	2	19,865	10,629	27	15	1.4	37	43,472
LMI borrower or census tract	757	3	14,686	7,604	35	30	2.3	39	8,610
Within assessment area	775	1	18,739	8,875	26	16	1.2	33	112,477
LMI borrower or census tract	764	2	13,559	5,845	34	30	1.7	36	24,239
<b>Type of lender</b>									
Depository	774	2	19,076	9,341	26	16	1.3	34	136,092
Subsidiary or affiliate of depository	774	1	18,903	9,438	27	15	.9	36	19,857
Credit union	779	2	17,568	9,183	24	11	.5	31	14,283
Independent mortgage company	763	2	19,554	10,670	29	18	1.9	37	46,865
<b>Type of loan</b>									
Conventional	780	1	17,738	8,096	26	14	.7	31	188,085
Higher priced	698	19	27,295	16,639	32	28	3.7	47	1,055
Not higher priced	781	1	17,681	8,049	26	14	.7	31	187,030
FHA	717	6	26,494	19,270	36	31	5.3	37	22,764
VA, RHS, or FSA	725	7	29,493	22,711	33	24	4.1	45	6,248
<b>Type of purchasing institution</b>									
Not sold	776	2	19,555	9,031	25	13	.9	33	37,997
Fannie Mae or Freddie Mac	780	1	17,394	8,028	26	14	.8	32	92,510
Ginnie Mae or Farmer Mac	713	9	27,262	20,369	34	27	5.3	39	10,793
Private securitization	782	1	16,690	6,105	26	14	.4	33	1,153
Bank or affiliate	771	1	19,235	9,980	28	18	1.5	35	42,636
Life insurance company or mortgage bank	761	2	20,771	11,929	29	19	1.9	37	13,930
Other	767	2	19,814	10,506	28	17	1.6	35	18,078
<b>All</b>	<b>772</b>	<b>2</b>	<b>19,071</b>	<b>9,629</b>	<b>27</b>	<b>16</b>	<b>1.3</b>	<b>35</b>	<b>217,097</b>

Note: See notes to table 14.A.

From 2006 to 2010, average credit scores rose significantly across all categories of borrowers, loans, and lenders. Overall, the average score rose from 701 to 728 for home-purchase loans and from 682 to 772 for refinance loans. The increase in borrower credit scores may reflect not only tightening in credit standards since 2006, but also changes in the demand for mortgage credit. For example, demand among borrowers with lower scores may have weakened more than that of borrowers with higher scores if lower-score borrowers were more adversely affected by the recession. The relatively large increase in the scores of refinance borrowers between 2006 and 2010 likely reflects, in part, a change in the composition of borrowers seeking to refinance. Specifically, in 2006, when the interest rate environment was relatively unfavorable, evidence suggests that those electing to refinance were doing so primarily to extract equity, and the matched data indicate that such borrowers had relatively low scores. In contrast, in 2010, the low-interest-rate environment appears to have attracted a much larger share of the most creditworthy borrowers looking to refinance simply to reduce their monthly payments.<sup>55</sup>

### Other Debts and Payment Obligations

The merged data set allowed us to measure other debts owed, in addition to the mortgage matched in the enhanced database. The second and third columns in tables 14 and 15 show mean and median consumer debt balances reported in the CCP in the quarter prior to origination of the mortgage. Consumer debt consists of all reported balances owed other than those associated with mortgage debt, such as bank credit card and retail card balances, vehicle loans, student loans, and consumer installment loans. The next two columns provide information on back-end PTI ratios, combining payments data on all types of debt from the CCP and borrower income data from the HMDA information. The payments data are based on what lenders and servicers report to Equifax, which typically reflects the payment-due amount on monthly account statements. For mortgages, this amount may include payments for property taxes and insurance, if collected by the servicer. We report median PTI ratios as well as the share of borrowers with a PTI ratio exceeding 43 percent. Under the Dodd-Frank Act as implemented by the CFPB, loans with a PTI ratio exceeding 43 percent could fall outside the definition of a qualified mortgage, and lenders making such loans could face heightened legal risk in the event of borrower default.<sup>56</sup>

It is important to note that the PTI ratios we calculated are likely to understate the PTI ratios used in underwriting for two main reasons. First, for joint mortgages, because we matched the credit record information of only one (randomly selected) borrower, the consumer debts and payments we calculated exclude individually held debts of other, unmatched co-borrowers. Second, nondebt obligations, such as child-support or alimony payments, may be included by underwriters in PTI calculations, but such obligations are not available in credit record data and thus could not be included in our calculations.

Although the estimated PTI ratio understates true PTI ratios, over one-fourth of home-purchase borrowers in 2006 exceeded the 43 percent threshold, as did about one-third of refinance borrowers.<sup>57</sup> In 2010, these numbers were lower, especially for refinance borrow-

<sup>55</sup> According to Freddie Mac, nearly 90 percent of the 2006 refinance loans in its portfolio were estimated to involve taking cash out, compared with less than 30 percent in 2010. See Freddie Mac, *Cash-out Refinance Report* (McLean, Va.: Freddie Mac), [www.freddiemac.com/news/finance/refi\\_archives.htm](http://www.freddiemac.com/news/finance/refi_archives.htm).

<sup>56</sup> Some loans, such as those eligible for FHA insurance, VA guarantees, or purchase by Fannie Mae or Freddie Mac, would be exempt from the 43 percent PTI rule. See the final rule of the Consumer Financial Protection Bureau on ability-to-repay standards under the Truth in Lending Act (Regulation Z), which is available at [www.federalregister.gov/articles/2013/06/12/2013-13173/ability-to-repay-and-qualified-mortgage-standards-under-the-truth-in-lending-act-regulation-z](http://www.federalregister.gov/articles/2013/06/12/2013-13173/ability-to-repay-and-qualified-mortgage-standards-under-the-truth-in-lending-act-regulation-z).

<sup>57</sup> The PTI statistics in tables 14 and 15 reflect nonmortgage payments just before mortgage origination plus mortgage payments just after origination, but we also examined total payments after origination to assess

ers, for whom the proportion was only about 16 percent. For home-purchase loans in 2010, 22 percent had PTI ratios above 43 percent, but about 70 percent of these loans were government backed (data derived from table 15.A), and such loans could still be qualified mortgages despite exceeding the threshold under the current regulations. Within a given year and loan purpose, black and Hispanic-white borrowers, LMI borrowers, and those using FHA or VA loans tend to have the highest likelihoods of having PTI ratios in excess of 43 percent.

### First-Time Homebuyers

Using the CCP data, we can estimate the fraction of home-purchase loans to first-time homebuyers as the share of home-purchase borrowers who have no record in the credit bureau data of ever having a mortgage.<sup>58</sup> In both 2006 and 2010, the incidence of first-time homebuying was higher among minority and LMI groups, groups that tend to have lower credit scores and higher PTI ratios. FHA and VA loans are more likely to be used by first-time homebuyers than are conventional loans, although in 2006 conventional higher-priced loans had a higher-than-average incidence of first-time homebuyers. Perhaps surprisingly, the fraction of home-purchase loans to first-time homebuyers increased markedly from 2006 to 2010. The *relative* strength of first-time homebuying (home-purchase lending overall was very weak in 2010) may reflect several factors, including temporary federal tax incentives for such activity available in 2010 and the possibility that many potential repeat buyers were saddled with underwater properties hindering their mobility.<sup>59</sup>

### Loan Performance

Credit record data allow users to construct an array of performance measures ranging from payments made as scheduled or minor delinquencies (such as payments 30 days in arrears) to metrics of more-serious payment problems (such as payments 120 or more days past due or an account in collections or foreclosure). Here we focus on one widely used metric of performance—the share of mortgage borrowers whose payments fell behind 60 days or more at any point within two years of taking out their loan. In combination with the HMDA data, differences in payment experiences can be explored across population and neighborhood groups, types of loans, and types of lenders.

Varying payment performance across populations can reflect a range of factors, including differences in employment circumstances after loan closing (for example, a reduction in hours and earnings), changes in family circumstances (such as divorce or illness), and differences in wealth that may be drawn on to make payments when unforeseen events arise. Home price changes may also affect payment performance, as declines in home values may alter borrower incentives to continue making scheduled payments, limit refinance opportunities that may allow some borrowers to lower their monthly payments, or hinder the ability to sell one's home in the event of financial distress. In addition, payment performance may depend on the features and pricing of the home loan itself. For example, loans of similar amounts to similar borrowers that carry higher interest rates impose a higher monthly payment burden and may place the borrower at greater risk of default.

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whether refinance loans were used to consolidate debts and reduce the total payment burden. On average, no such effect was found.

<sup>58</sup> To the extent that home-purchase borrowers have owned a home in the past that was not financed by a reportable mortgage, our measure will overstate the true share of first-time homebuyers.

<sup>59</sup> Home purchases through April 30, 2010, that were closed before September 30, 2010, may have been eligible for the first-time homebuyer tax credit. See Internal Revenue Service, "First-Time Homebuyer Credit," webpage, [www.irs.gov/uac/First-Time-Homebuyer-Credit-1](http://www.irs.gov/uac/First-Time-Homebuyer-Credit-1).

The matched data reveal significant differences in the payment performance of different populations grouped by race or ethnicity, income, and neighborhood demographic characteristics (see the “Loan performance” columns of tables 14 and 15). The data indicate that black and Hispanic-white borrowers are more likely to fall behind on their payments than other racial or ethnic groups. In addition, delinquency tends to be negatively correlated with borrower and neighborhood income, although in 2006, the relationship with borrower income was less pronounced. For example, in 2006, the difference in delinquency rates between LMI- and high-income home-purchase borrowers was about 4 percentage points, while the difference in delinquency rates between those in LMI- and high-income census tracts was 11 percentage points. One factor that may be pushing up the default rate of high-income borrowers is misreporting of income on loan applications (by borrowers or loan officers) at the height of the housing boom, as indicated in previous research.<sup>60</sup> In other words, many borrowers classified as high income in 2006 may actually have had lower incomes than stated on applications, and these borrowers may have had a relatively high likelihood of default.

Conventional higher-priced loans posted the worst performance of any category listed in table 14, at over three times the overall delinquency rate for home-purchase loans (31 percent compared with 10 percent) and more than double the rate for refinance loans (26 percent compared with 12 percent). This outcome may not be surprising given the credit scores of borrowers in this category; 50 percent of home-purchase borrowers using higher-priced loans had a score below 620. That said, we later show that the poor performance of higher-priced loans cannot be explained entirely by credit scores. In other words, the fact that a loan is higher priced may convey additional information about risk that is not captured by scores alone.

The performance of loans originated in 2010 improved dramatically compared with those originated in 2006. The two-year delinquency rate for home-purchase and refinance loans originated in 2010 was just 3 percent and 1 percent, respectively. FHA and VA loans had the highest delinquency rates across loan products; conventional loans (all types combined) experienced delinquencies well below 1 percent, implying almost no risk-taking in the non-government-backed mortgage market in the aftermath of the financial crisis.

### Performance of Delinquent Mortgagors on Other Debt Obligations

As noted, the matched data provide an opportunity to review the performance of mortgage borrowers on their other credit obligations. For this article, we focus on the share of individuals who were delinquent on their mortgage at any point during the two-year period from origination and who were also late on their payments to at least one other debt obligation as of the two-year anniversary of taking out their home loan. Evidence of delinquency on multiple accounts speaks to the severity of financial distress that may have led to mortgage delinquency. For the 2006 cohort of delinquent mortgage borrowers, over half of them were also delinquent on at least one nonmortgage debt obligation at the two-year mark after opening their mortgage (however, some borrowers have no other accounts on which to be delinquent; excluding such borrowers, the fraction of delinquent mortgagors with a nonmortgage delinquency rises to nearly two-thirds). There is remarkably little variation in performance across borrower, neighborhood, loan, or lender type. For the 2010 cohort, about half of the home-purchase borrowers were delinquent on at least one of their other debt obligations, while, among those obtaining a refinance loan, the share was notably lower at 35 percent. The share of 2010 delinquent mortgage borrowers who were in arrears on other credit obligations varies to some extent across groups. In particular,

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<sup>60</sup> See Avery and others, “The Mortgage Market in 2011,” in note 10.

Asians, higher-income borrowers, and borrowers who obtained their home loan from a credit union or whose loan was purchased by Fannie Mae or Freddie Mac performed better on their other debt obligations than other groups.

### **Borrower Characteristics, Loan Performance, and the Community Reinvestment Act**

The Congress enacted the CRA to encourage federally insured banking institutions to help meet the credit needs of their local communities in a manner consistent with safe and sound lending practices. The CRA-related lending activities of banking institutions have been closely scrutinized by regulators, researchers, and the general public, especially recently as questions have been raised about the link between the CRA and the financial crisis. In previous research, using HMDA data alone, we have shown that in the run-up to the Great Recession, the share of all higher-priced loans originated by banking institutions in their assessment areas—the geographic areas of focus in CRA enforcement exams—was small.<sup>61</sup> The matched HMDA–CCP data provide unique, complementary information on the financial characteristics of borrowers and the performance of loans extended by banking institutions inside their assessment areas.

In both 2006 and 2010, average credit scores were somewhat higher for loans originated by banking institutions (and their nondepository subsidiaries) for properties inside their assessment areas compared with outside, and PTI ratios also tended to be lower for loans on properties inside such areas than for those on properties outside them. Of course, the CRA emphasizes lending to LMI populations within assessment areas, and similar patterns hold for such loans. For example, in 2006, the average credit score for home-purchase loans to LMI borrowers or neighborhoods inside CRA assessment areas was 21 points higher than for loans to LMI borrowers outside such areas (696 versus 675). Further, the data also indicate that the delinquency rate of loans extended to LMI borrowers originated in 2006 by banking institutions for properties outside their assessment areas was more than twice the rate of loans originated for homes inside their assessment areas. For example, outside-assessment-area home-purchase loans had a delinquency rate of 15 percent, compared with just 7 percent for inside-assessment-area loans.

Further analysis (not shown) suggests that the difference in performance of loans inside and outside of assessment areas seems to largely reflect the likelihood that the banking organizations that tended to make loans outside of their assessment areas in 2006 also tended to make riskier loans in general. In other words, the performance of inside- and outside-assessment-area loans *within* a given bank tends to be quite similar.

Finally, the delinquency rates for 2006 home-purchase and refinance loans that the CRA promotes—those extended to LMI borrowers inside banks' assessment areas—were significantly lower than the 10 percent and 12 percent rates, respectively, for all home-purchase and refinance loans originated in 2006. Moreover, CRA-targeted loans performed more than four times better than higher-priced loans originated in 2006. The relatively low delinquency rate of loans encouraged by the CRA is inconsistent with the notion that the CRA was a principal driver of the mortgage and financial crisis.

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<sup>61</sup> See Neil Bhutta and Glenn B. Canner (2009), "Did the CRA Cause the Mortgage Market Meltdown?" Federal Reserve Bank of Minneapolis, *Community Dividend* (March), [www.minneapolisfed.org/publications\\_papers/pub\\_display.cfm?id=4136](http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=4136).

## Explaining Differences in Loan Performance across Groups

As discussed in the previous section, the matched data reveal substantial differences in loan performance (delinquency rates) across borrowers grouped by their race and ethnicity. For example, the delinquency rate for Asian homebuyers in 2006 was less than 6 percent, compared with over 23 percent for black homebuyers (as shown in table 14.A). This section explores the extent to which the racial and ethnic differences in performance can be explained by factors such as credit scores, house price declines, and mortgage pricing (under the assumption that price reflects risk).<sup>62</sup> We compare performance across population groups within 12 relatively narrow categories defined by higher-priced loan status, credit score range at origination (under 620, 620–719, and 720 or over), and geography (whether or not properties were located in “housing bust” counties, where house prices declined most sharply).<sup>63</sup> The analysis also distinguishes between home-purchase and refinance loans.

Focusing first on home-purchase loans in [figure 2.A](#), we find that the three variables used to define the 12 categories appear to be highly correlated with loan performance. In each panel, performance improves dramatically as credit scores rise, conditional on race and ethnicity. In addition, performance in housing-bust counties consistently lags that in other counties, conditional on score, price, and race or ethnicity. Finally, for any given score, geographic, and racial or ethnic group, the performance of borrowers with non-higher-priced loans exceeds that of borrowers with higher-priced loans. This finding suggests that price helps capture information about risk not observed in the matched data, such as down-payment size or an indication of whether income and assets were fully documented during the application process. It has also been hypothesized that some lenders extended loans with higher prices that were not justified on the basis of risk, and that the higher payment burden eventually led to default.

Across racial and ethnic groups, notable differences in performance were found even within each narrow category. For example, Hispanic white borrowers tended to post higher delinquency rates than other groups within each score-by-price category in the housing-bust counties. In addition, black borrowers with credit scores below 620 in non-housing-bust counties experienced higher delinquency rates than borrowers in other racial and ethnic groups. Further research is needed to better understand why differences in loan payment performance persist after accounting for score, location, and higher-priced status of the loan. These differences may be due in part to minorities being treated differently in the marketplace, which has been raised by many as a serious concern, and several legal actions have alleged discriminatory behavior on the part of lenders during the boom. At the same time, it is important to keep in mind that the matched data used here exclude some key variables that might be correlated with both loan performance and minority status, such as available financial resources and post-origination employment experiences.<sup>64</sup>

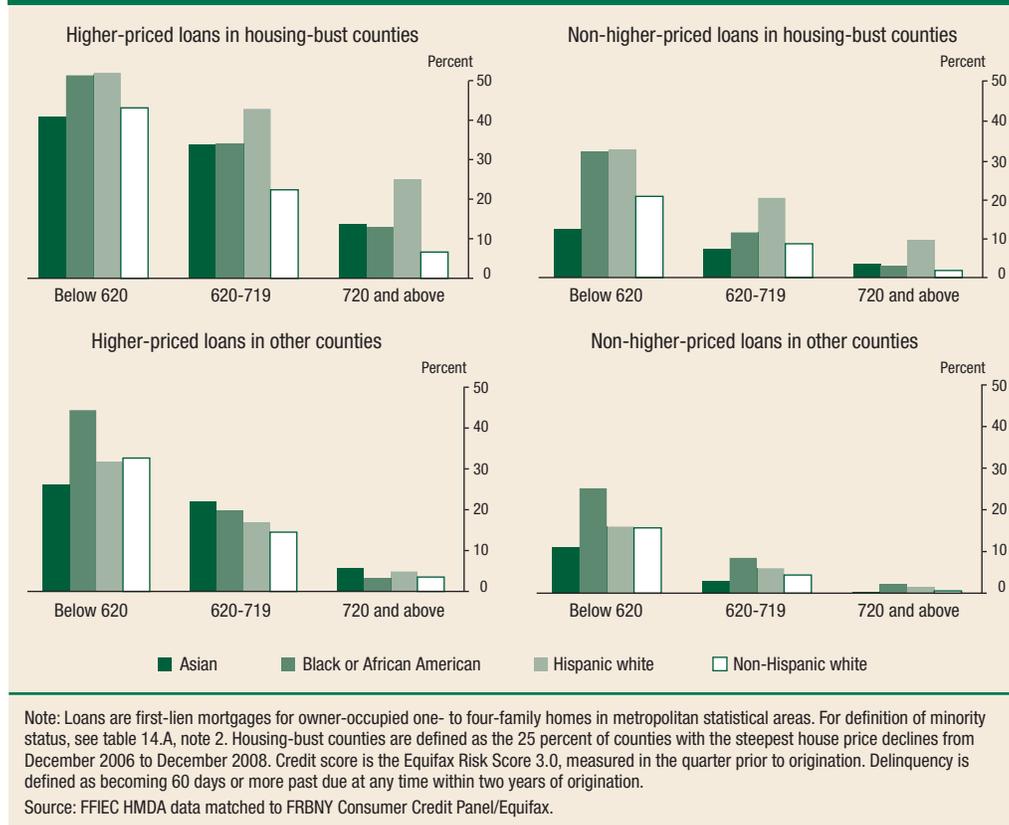
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<sup>62</sup> For an in-depth analysis, using similar data, of factors affecting mortgage default across racial and ethnic groups, see Patrick Bayer, Fernando Ferreira, and Stephen L. Ross (2013), “The Vulnerability of Minority Homeowners in the Housing Boom and Bust,” NBER Working Paper Series 19020 (Cambridge, Mass.: National Bureau of Economic Research, May).

<sup>63</sup> Housing-bust counties are defined as the 25 percent of counties with the steepest house price declines from December 2006 to December 2008 according to data from CoreLogic. The CoreLogic data cover the vast majority of MSA counties. Those loans for properties in areas not covered by CoreLogic (under 3 percent of loans) were included in the set of “other counties.” Housing-bust counties consist largely of counties in Arizona, California, Florida, and Nevada, as well as a number of counties in Maryland, Michigan, and Minnesota. See appendix [figure C.1](#) for a map of housing-bust counties.

<sup>64</sup> When we account more precisely for location, loan pricing, and credit score in a multivariate regression, we find sizable and statistically significant differences in loan performance for blacks and Hispanic whites relative to non-Hispanic whites. In future work, we will explore the effect of other factors that may bear on loan performance.

**Figure 2.A. Delinquency rates on 2006 home-purchase loans, by minority status, higher-priced loan status, location, and credit score**



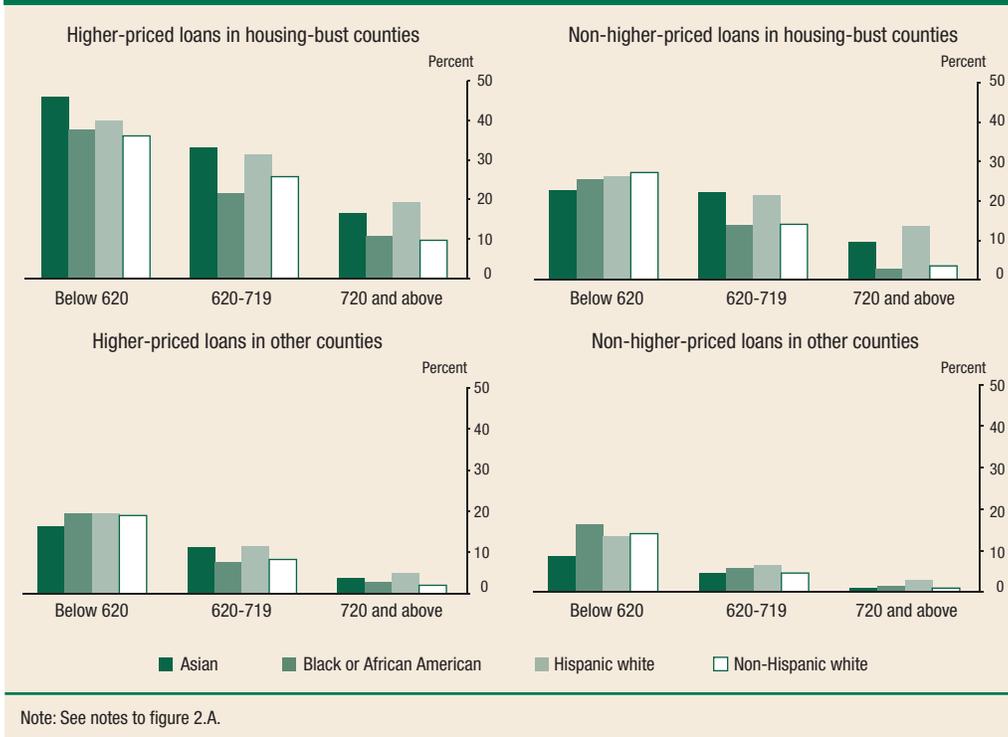
With respect to refinance loans, the patterns within and across panels once again indicate that the three variables used to define the 12 categories are highly correlated with performance (figure 2.B). Interestingly, unlike the outcomes for home-purchase loans, differences in performance across racial and ethnic groups within categories are more muted.

### Long-Term Outcomes for 2006 Home-Purchase Borrowers

The panel structure of the CCP provides an opportunity to study the long-term outcomes of those who purchased their homes at the height of the housing boom. Many of these borrowers experienced sharp declines in the value of their homes, as well as employment-related effects of the severe recession, soon after they bought their homes. Earlier sections documented significant differences in performance on mortgages in the first two years after origination across different populations. Here we look at variation in the probability of having a mortgage six or more years after origination of a 2006 home-purchase loan (as of the end of 2012). Borrowers who became delinquent may have been able to recover from the delinquency (by curing their delinquency or modifying their mortgage) and stay in their home, while others may have lost or sold the home they bought in 2006 but have been able

One caveat to keep in mind when looking at figures 2.A and 2.B is that in cutting the data into 12 categories, some cells have relatively few observations, which may contribute to the variability observed. In particular, the relatively small number of Asian borrowers in some cells can lead to fairly imprecise estimates of their delinquency rates (see appendix tables C.1.A and C.1.B for observation counts in each cell).

**Figure 2.B. Delinquency rates on 2006 refinance loans, by minority status, higher-priced loan status, location, and credit score**



to get another mortgage to buy a new home more recently.<sup>65</sup> We also examine whether the credit score dynamics—score declines and score recovery—of those who missed payments on their mortgages differ by borrower race and ethnicity.<sup>66</sup>

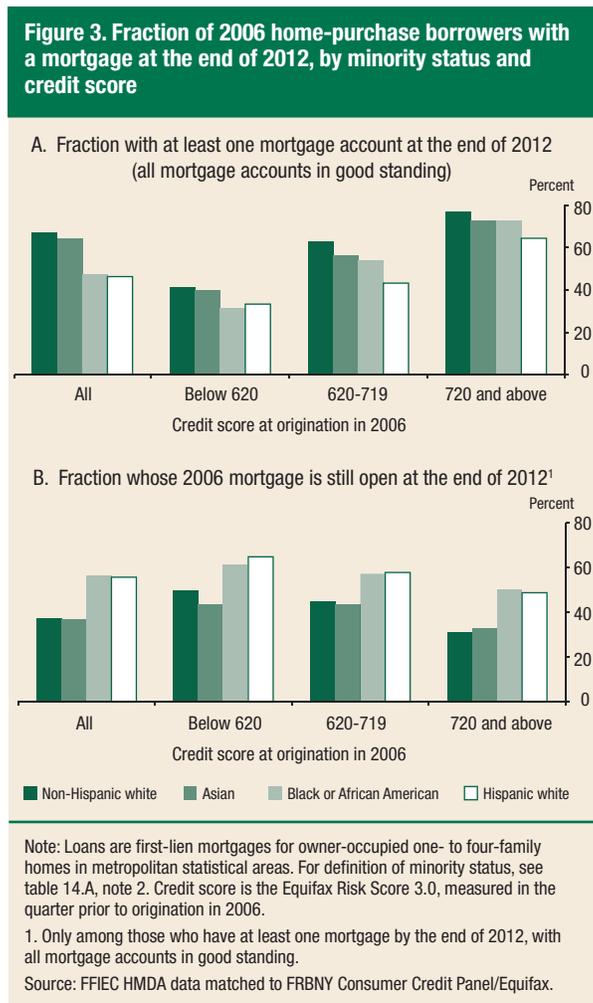
### Mortgage Status in 2012 for 2006 Homebuyers

The matched data indicate that many of the 2006 borrowers appear to no longer have a mortgage, and the data further indicate that black and Hispanic-white borrowers who purchased their homes in 2006 are far less likely than Asians and non-Hispanic whites to have mortgages (with all mortgage debt in good standing) as of the end of 2012 (figure 3).<sup>67</sup> Well over 60 percent of Asian and non-Hispanic-white borrowers still have a mortgage, compared with about 50 percent of black and Hispanic-white borrowers (figure 3, panel A). This difference likely reflects the higher delinquency rate of blacks and Hispanic whites on their 2006 mortgages and difficulties delinquent borrowers may have faced in getting another mortgage subsequently. This difficulty could stem not only from the tightened

<sup>65</sup> The term “curing” refers to situations in which borrowers who are delinquent on their home loans take steps to cover the payments in arrears.

<sup>66</sup> Previous research has examined score dynamics before and after foreclosure. See Kenneth P. Brevoort and Cheryl R. Cooper (2010), “Foreclosure’s Wake: The Credit Experiences of Individuals Following Foreclosure,” Finance and Economics Discussion Series 2010-59 (Washington: Board of Governors of the Federal Reserve System, November), [www.federalreserve.gov/pubs/feds/2010/index.html](http://www.federalreserve.gov/pubs/feds/2010/index.html). The results here provide new information on score dynamics by race and ethnicity.

<sup>67</sup> One data-related factor that might be biasing downward the fraction of borrowers who appear to still have a mortgage is the potential lag in reporting new loans to the credit bureaus. Many borrowers refinanced in 2012, especially toward the end of the year. Borrowers who refinanced at the end of the year may appear to have no mortgage because the new loan has not yet been reported to Equifax, while the previous loan may have been reported as closed.



credit standards prevailing since the recession, but also from financial difficulties that once-delinquent borrowers may continue to face (for example, long unemployment spells). Alternatively, those who went through default may also now prefer to rent rather than own. Figure 3 also indicates that accounting for credit score at the time of origination of the 2006 loan helps explain some, but not all, of these differences.

The matched data also indicate that, among those who still have a mortgage as of the end of 2012, black and Hispanic-white borrowers are much more likely to have the same loan they opened in 2006, even conditional on credit score at origination (figure 3, panel B). Moreover, these differences persist after also accounting for current credit score as well as geographic location. This finding might suggest that some minority groups have been less likely to refinance their loans and benefit from the relatively low interest rates in recent years. However, one possible mitigating factor could be that black and Hispanic-white borrowers

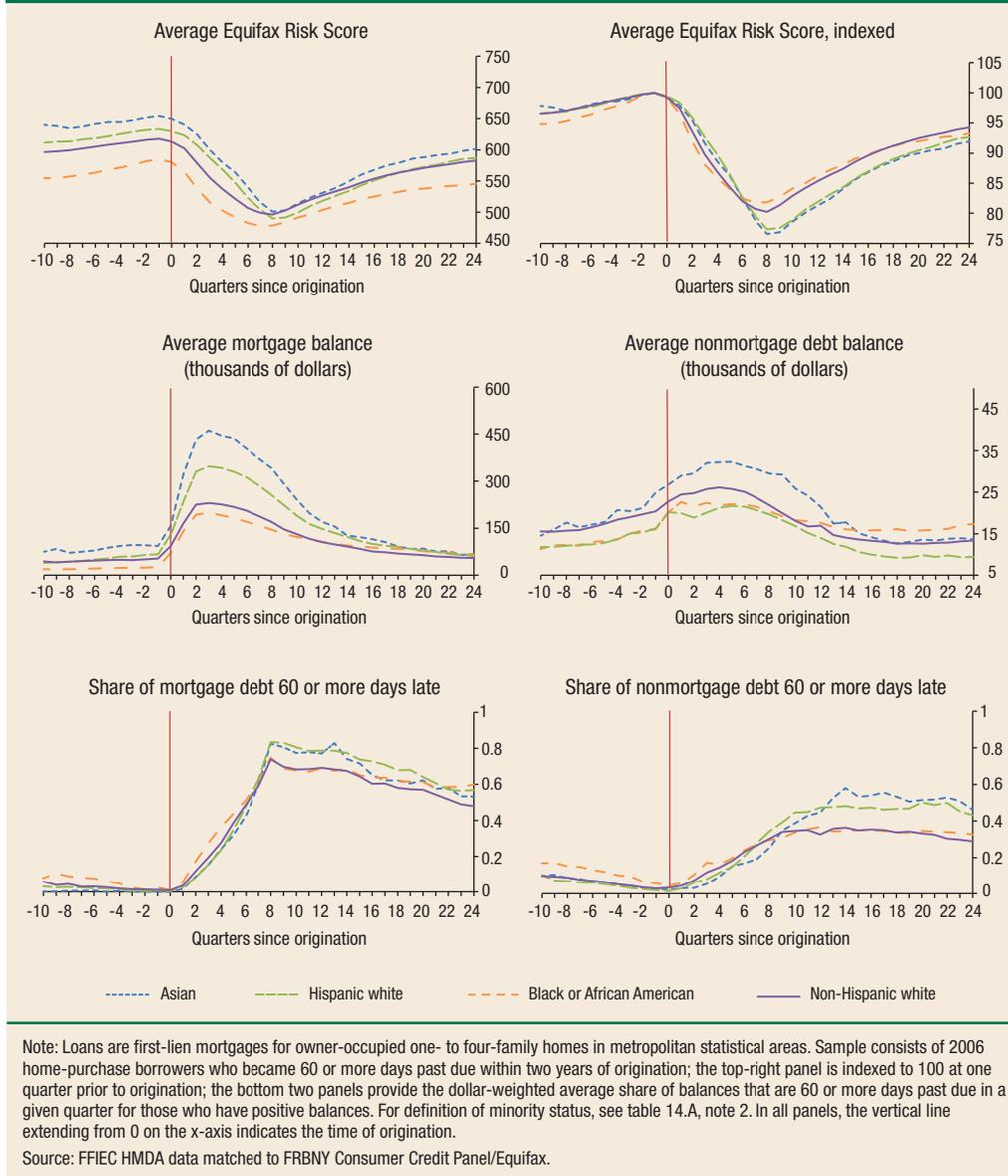
might be more likely to have an adjustable-rate mortgage whose payments have adjusted downward since 2006. A more precise understanding of the reasons for this difference across groups requires additional data and further investigation.

### Credit Score Dynamics of Delinquent Mortgage Borrowers

Finally, we explore credit score dynamics leading up to and after loan origination in 2006 for borrowers who fell behind by 60 days or more on their mortgages within two years of origination. The top-left panel in figure 4 shows the time path of average credit scores for delinquent mortgagors by the four main racial or ethnic groups, with the vertical line indicating the time of origination. Credit scores peaked just prior to loan origination and then dropped sharply soon after that as borrowers became delinquent. Scores then began to recover but, on average, were still slightly lower 24 quarters (6 years) after origination than they were in the quarter just before origination. The slow recovery of scores may reflect the severity and ongoing financial stress that delinquent mortgage borrowers faced.

The top-right panel indexes scores to 100 in the quarter prior to origination to more easily compare score drops and recoveries across groups. This panel shows that Asian and Hispanic-white borrowers had a somewhat larger drop in their credit scores, on average, and score recovery was quite similar for all groups, with scores at 90 percent to 95 percent of their peak value six years after origination. In figure 5, we limit the sample to those who

**Figure 4. Dynamics of credit scores and debt for delinquent 2006 home-purchase borrowers, by minority status**



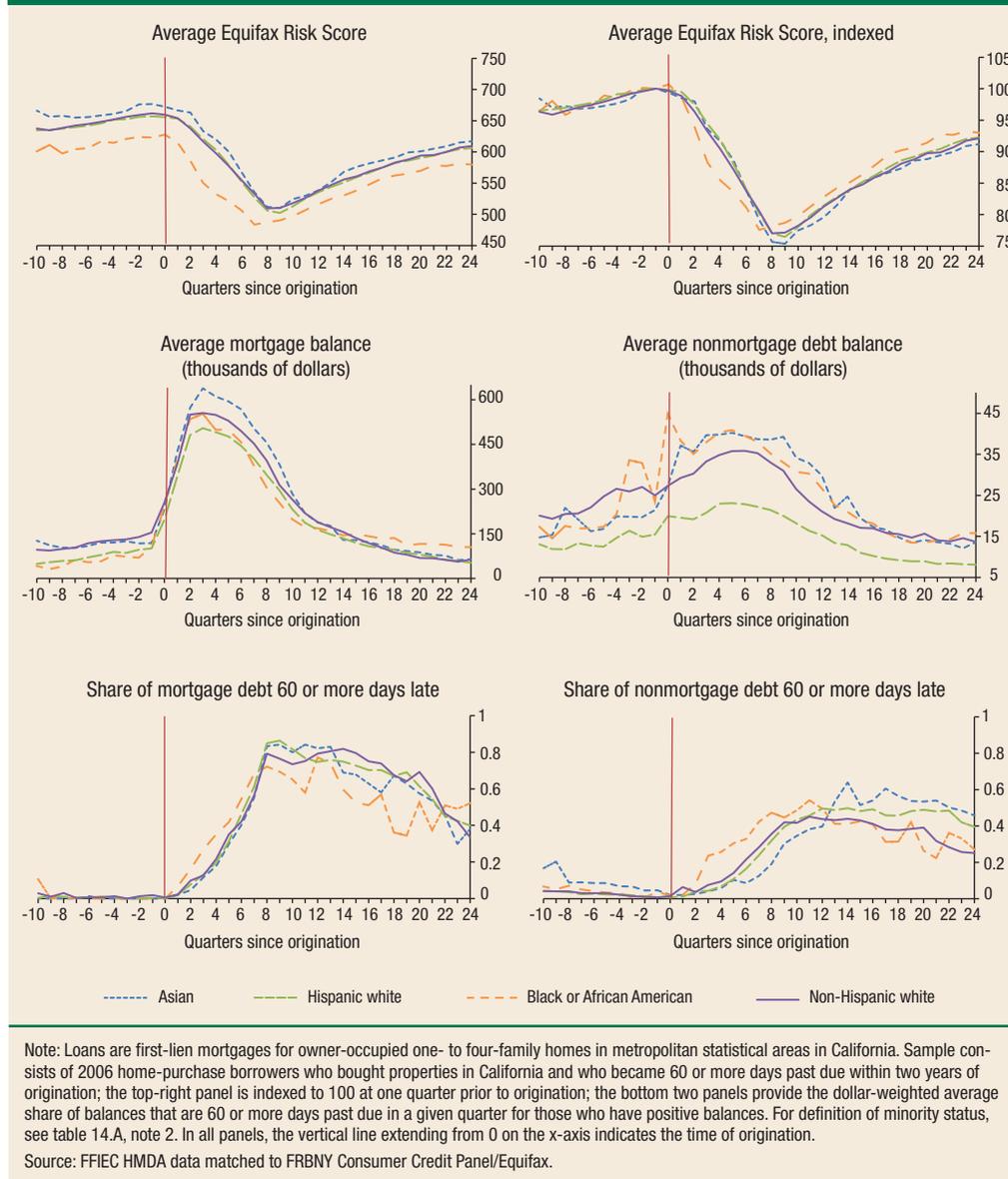
purchased properties in California in order to help equalize the housing and economic environment, and we find here that score patterns after origination were nearly identical across groups.

The middle two panels of figures 4 and 5 show the evolution of reported average mortgage and nonmortgage balances.<sup>68</sup> Average mortgage balances rose sharply just after origination and, after six years, dropped back to the low levels prior to origination for all groups.<sup>69</sup>

<sup>68</sup> Mortgage balances peak three quarters *after* origination, in part because new loans often are reported to the credit-reporting agencies with a lag. As discussed in appendix B, we match only borrowers in the CCP whose mortgage was reported within two quarters of origination. Borrowers may also take out junior liens or draw on lines of credit soon after origination, pushing overall mortgage balances higher.

<sup>69</sup> Averages shown in figures 4, 5, and 6 are for a constant sample of individuals who took a loan in 2006, and

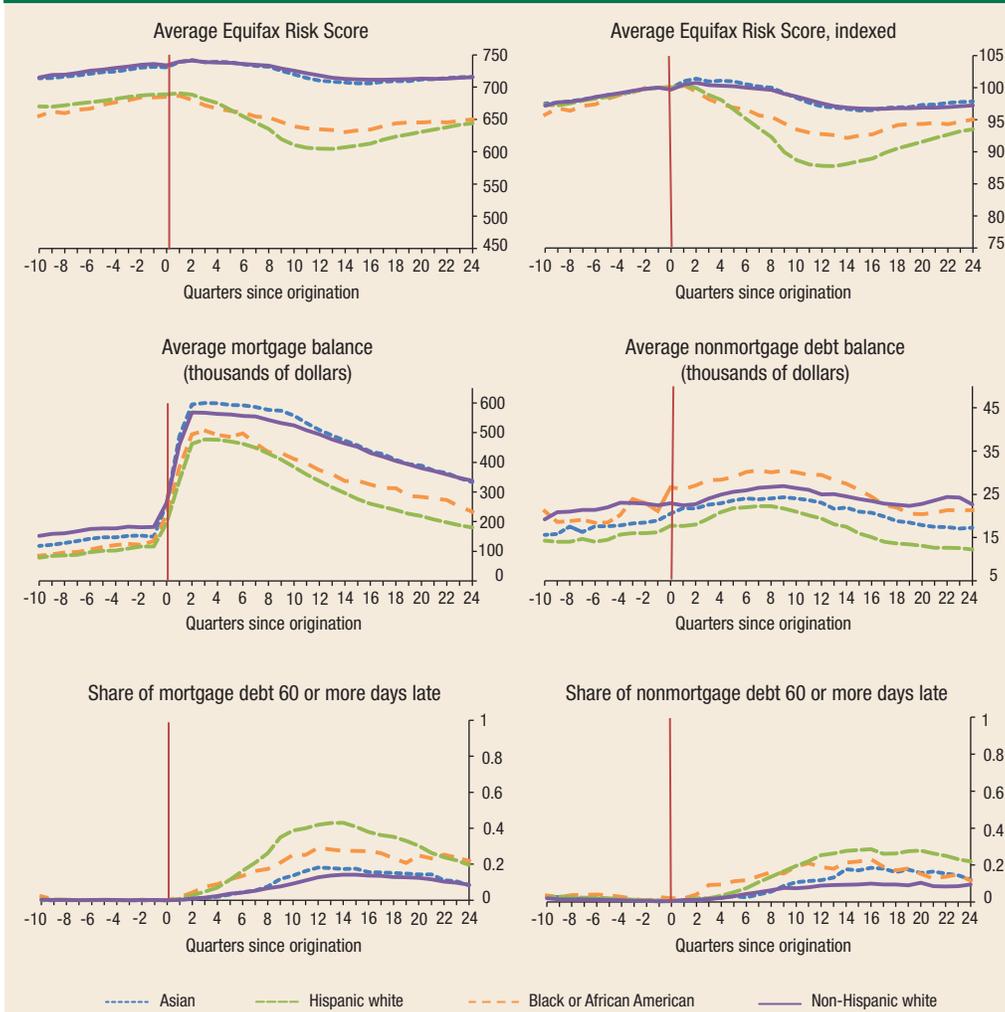
**Figure 5. Dynamics of credit scores and debt for delinquent 2006 home-purchase borrowers in California, by minority status**



Nonmortgage balances also peaked just after origination and then fell significantly. In figure 5, where we limit the sample to California borrowers, there is less dispersion in peak mortgage and nonmortgage debt across demographic groups, with one exception: Peak nonmortgage debt of Hispanic whites was about half that of other groups. Moreover, the pattern of nonmortgage debt accumulation by Hispanic whites who became delinquent on their mortgages was similar to average accumulation by all Hispanic white borrowers in California, irrespective of delinquency status (figure 6). In contrast, nonmortgage debt accumulation for delinquent borrowers of other racial and ethnic groups was far more pronounced when compared with the averages of the groups at large. This finding suggests

thus they include zero balances at points in time when these individuals do not have any mortgages outstanding.

**Figure 6. Dynamics of credit scores and debt for all 2006 home-purchase borrowers in California, by minority status**



Note: Loans are first-lien mortgages for owner-occupied one- to four-family homes in metropolitan statistical areas in California. Sample consists of 2006 home-purchase borrowers who bought properties in California; the top-right panel is indexed to 100 at one quarter prior to origination; the bottom two panels provide the dollar-weighted average share of balances that are 60 or more days past due in a given quarter for those who have positive balances. For definition of minority status, see table 14.A, note 2. In all panels, the vertical line extending from 0 on the x-axis indicates the time of origination.

Source: FFIEC HMDA data matched to FRBNY Consumer Credit Panel/Equifax.

that the factors driving mortgage defaults among Hispanic white borrowers may have differed from other groups and may be related to the unexplained difference in performance by Hispanic white borrowers documented in figure 2.A.

Subsequent falling levels of debt and aging of delinquencies likely are factors contributing to score recovery over time. The bottom two panels of figures 4 and 5 show that delinquency remains elevated through the end of the observation period, but these delinquencies reflect the payment status only of those who continue to carry substantial debt.<sup>70</sup>

<sup>70</sup> Although the sample in figures 4 and 5 consists only of those borrowers who became delinquent on their mortgages that we linked to the HMDA data, the delinquency rate on mortgage debt in the bottom-left panel does not reach 100 percent for two reasons. First, some borrowers may become delinquent early on within the first two years and then cure. Second, some borrowers could have other mortgages on which they remain current.

**Future Analysis**

As our initial analysis of the matched HMDA–CCP data indicate, these data offer an opportunity to investigate a wide range of issues related to home lending. Although the matched data do not include all factors that researchers seek when investigating consumers’ borrowing experiences, merging the credit records with the HMDA data provides a significant step forward in this regard and will serve as the basis for future research.

## Appendix A: Requirements of Regulation C

The Federal Reserve Board's Regulation C requires lenders to report the following information on home-purchase and home-improvement loans and on refinancings:

### For each application or loan

- application date and the date an action was taken on the application
- action taken on the application
  - approved and originated
  - approved but not accepted by the applicant
  - denied (with the reasons for denial—voluntary for some lenders)
  - withdrawn by the applicant
  - file closed for incompleteness
- preapproval program status (for home-purchase loans only)
  - preapproval request denied by financial institution
  - preapproval request approved but not accepted by individual
- loan amount
- loan type
  - conventional
  - insured by the Federal Housing Administration
  - guaranteed by the Department of Veterans Affairs
  - backed by the Farm Service Agency or Rural Housing Service
- lien status
  - first lien
  - junior lien
  - unsecured
- loan purpose
  - home purchase
  - refinance
  - home improvement
- type of purchaser (if the lender subsequently sold the loan during the year)
  - Fannie Mae
  - Ginnie Mae
  - Freddie Mac
  - Farmer Mac
  - private securitization
  - commercial bank, savings bank, or savings association
  - life insurance company, credit union, mortgage bank, or finance company
  - affiliate institution
  - other type of purchaser

### For each applicant or co-applicant

- race
- ethnicity
- sex
- income relied on in credit decision

**For each property**

- location, by state, county, metropolitan statistical area, and census tract
- type of structure
  - one- to four-family dwelling
  - manufactured home
  - multifamily property (dwelling with five or more units)
- occupancy status (owner occupied, non-owner occupied, or not applicable)

**For loans subject to price reporting**

- spread above comparable Treasury security for applications taken prior to October 1, 2010
- spread above average prime offer rate for applications taken on or after October 1, 2010

**For loans subject to the Home Ownership and Equity Protection Act**

- indicator of whether loan is subject to the Home Ownership and Equity Protection Act

## Appendix B: Matching HMDA Records with Credit Bureau Records

For this article, we created a new data set that connects borrowers included in the HMDA loan records—that is, those reported under the Home Mortgage Disclosure Act of 1975—to their credit bureau information from Equifax, one of the three major consumer credit-reporting agencies in the United States. Specifically, the credit records available to us for matching come from the Federal Reserve Bank of New York Consumer Credit Panel/Equifax (CCP) data.<sup>71</sup> The CCP is a 5 percent, nationally representative sample of all individuals with a credit record and a valid Social Security number. Furthermore, the CCP data are a quarterly panel, tracking the same individuals over time. The sampling approach is designed to generate the same entry and exit behavior as is present in the population, with young individuals and immigrants entering the sample and deceased individuals and emigrants leaving the sample each quarter at the same rate as in the U.S. population, such that each quarterly snapshot is nationally representative.

Neither the HMDA data nor the credit record data include personal identifying information, but borrowers in the two data sets can be matched based on the mortgage loan information common to both data sets—specifically, loan amount, month of loan origination, and census-tract location. Because we have access to the confidential version of the HMDA data, we observe origination dates, while the CCP contains detailed trade-line information on each open mortgage account a consumer has in any given quarter, including the loan amount and month opened.<sup>72</sup> The CCP also provides the census-tract locations of consumers' reported *mailing* addresses each quarter. In contrast, the HMDA records provide the census-tract location of the property securing the mortgage. For this reason, we attempted to match only borrowers in the HMDA records who obtained loans for owner-occupied properties—where mailing and property locations are likely to coincide.

In order to match a given year of HMDA records to the credit records, we started with all first-lien HMDA home-purchase and refinance originations that were for one- to four-family owner-occupied properties in metropolitan statistical areas (MSAs). We limited the data to MSAs because the HMDA data are more fully representative of lending in such areas.<sup>73</sup> We also excluded from the HMDA data, prior to matching, the roughly 15 percent of loans that are not unique in terms of location, origination month, and loan amount. In the CCP data, we identified all individuals whose most recent closed-end mortgage loan was opened two quarters ago, as new loans tend to be reported to credit bureaus with a lag. Thus, consumers in the CCP who have a record, as of the third quarter of 2006, of opening a mortgage in the first quarter of 2006 would be eligible to be matched to the HMDA records from the first quarter of 2006; those who have a record, as of the fourth quarter of 2006, of opening a mortgage in the second quarter of 2006 would be eligible to be matched to the HMDA records from the second quarter of 2006; and so on. Once we connected a HMDA record to an individual in the CCP, we could track that individual in the CCP over time.

Because the credit record data are only a 5 percent sample of the full population, only a fraction of HMDA loan records will be represented in the CCP. Of the HMDA loans eligible to be matched in 2006 and 2010, 4.4 percent were matched, implying a match rate of about 60 percent. To see this result, first note that about 13.7 million HMDA records were eligible for matching in the two years (including the roughly 15 percent of non-unique records). Of these records, 48 percent had co-borrowers, and such loans have twice the probability (or more, if there are more than two borrowers) of showing up in the CCP as

<sup>71</sup> For further details, see note 49 of the main text.

<sup>72</sup> The term “trade lines” refers to the records of credit accounts that are reflected in credit record files.

<sup>73</sup> See Robert B. Avery, Kenneth P. Brevoort, and Glenn B. Canner (2007), “Opportunities and Issues in Using HMDA Data,” *Journal of Real Estate Research*, vol. 29 (October–December), pp. 351–79.

individual mortgages, since sampling for the CCP is done at the individual level. Thus, the maximum number of matches we could expect (assuming that all lenders report mortgages to Equifax) is about 1 million ( $13.7 \text{ million} \times 0.05 \times 1.48$ ). We actually obtained 600,118 matches, or about 60 percent of the maximum possible.

Several factors contributed to the implied match rate being below 100 percent. First, as noted, about 15 percent of HMDA records were not unique and thus could not be matched. Second, we used only those mortgages in the CCP that were reported at two quarters after origination; some mortgages may have been reported after three quarters or more, and these mortgages were not matched. And, third, although we used only loans related to owner-occupied properties, property location (from the HMDA data) and mailing location (from the CCP) do not always coincide. For example, some homebuyers use a post office box that is located in a different census tract than their home.

Our main concern with the matched sample is whether it accurately represents the pool of mortgage originations. So long as nonmatches occur mostly for random reasons, the 60 percent match rate should not pose a problem. Table B.1 compares summary statistics from the full 2006 and 2010 HMDA data with the matched samples. In general, the statistics line up quite closely, somewhat more so in 2010 than in 2006. Overall, the matched data are likely to provide a good representation of first-lien, owner-occupant, one- to four-family home-purchase and refinance lending in U.S. metropolitan areas during 2006 and 2010.

**Table B.1. Comparison of full 2006 and 2010 HMDA data sets with matched samples**

Percent except as noted

Characteristic and status	2006		2010	
	Full	Matched	Full	Matched
<b>Amount of loan (thousands of dollars)<sup>1</sup></b>				
Mean	240	226	225	221
Median	190	180	185	184
<b>Borrower</b>				
<b>Income (thousands of dollars)<sup>2</sup></b>				
Mean	97	89	109	105
Median	74	70	83	83
LMI share	24	27	25	25
<b>Minority status<sup>3</sup></b>				
Asian	4.3	3.6	6.2	5.7
Black or African American	10.0	9.5	4.3	4.1
Hispanic white	12.4	10.3	5.6	5.0
Non-Hispanic white	59.2	62.6	72.1	73.1
All others <sup>4</sup>	14.1	14.0	11.8	12.1
<b>Location of borrowers</b>				
Share in lower-income neighborhood	18.1	17.1	9.2	9.1
Share in CRA assessment area <sup>5</sup>	44.1	45.3	69.5	71.0
Share of borrowers in Arizona, California, Florida, or Nevada	29.7	27.3	20.9	20.4
<b>Type of lender</b>				
Depository	38.2	40.1	56.7	58.4
Nonbank subsidiary or affiliate of a depository	23.2	24.7	9.8	9.9
Credit union	2.7	2.5	6.0	5.4
Independent mortgage company	35.9	32.7	27.4	26.3
<b>Loan characteristic</b>				
Nonconventional <sup>6</sup>	5.5	6.0	27.1	27.0
Higher priced	26.5	24.3	1.6	.8
Home purchase	49.6	44.4	32.7	30.7
Memo:				
Number of loans	7,748,853	297,652	5,926,374	302,466

Note: "Full" columns show statistics from HMDA data for first-lien home-purchase and refinance originations for one- to four-family owner-occupied properties in metropolitan statistical areas. "Matched" columns show statistics from HMDA data matched to the FRBNY Consumer Credit Panel/Equifax data.

<sup>1</sup> Loan amounts are reported under HMDA to the nearest \$1,000.

<sup>2</sup> Income amounts are reported under HMDA to the nearest \$1,000.

<sup>3</sup> Borrowers are placed under only one category according to the race and ethnicity of the person listed first on the application.

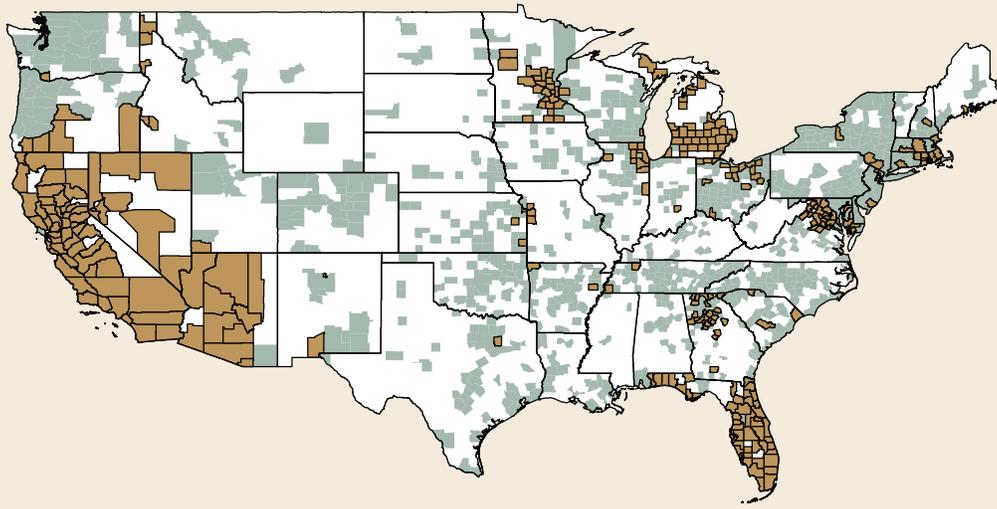
<sup>4</sup> All others consist of American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, and applicants for whom race or ethnicity was not reported.

<sup>5</sup> Includes only loans originated by depository institutions and their subsidiaries or affiliates.

<sup>6</sup> Loans insured by the Federal Housing Administration or backed by guarantees from the U.S. Department of Veterans Affairs, the Farm Service Agency, or the Rural Housing Service.

LMI: Low and moderate income; CRA: Community Reinvestment Act.

Source: FFIEC HMDA data matched to FRBNY Consumer Credit Panel/Equifax.

**Figure C.1. Housing-bust counties**

Note: Gold areas identify housing-bust counties, which are defined as the 25 percent of counties with the steepest house price declines from December 2006 to December 2008; light green areas identify non-housing-bust counties; and white areas indicate that data are not available.  
Source: House price index data from CoreLogic.

**Table C.1. Delinquency rates for 2006 borrowers, by purpose of loan and by minority status, higher-priced loan status, location, and credit score****A. Home purchase**

Percent except as noted

Minority status <sup>1</sup>	Credit score								
	Below 620			620–719			720 and above		
	<i>N</i>	Share	Delinq. rate	<i>N</i>	Share	Delinq. rate	<i>N</i>	Share	Delinq. rate
<b>Higher-priced loans in housing-bust counties<sup>2</sup></b>									
Asian	99	1.7	40.8	144	2.5	33.9	43	.8	13.7
Black or African American	837	8.6	51.3	369	3.8	34.2	89	.9	13.0
Hispanic white	1,043	8.7	52.0	1,152	9.7	42.8	319	2.7	25.0
Non-Hispanic white	1,633	1.8	43.1	1,317	1.5	22.4	454	.5	6.6
All others <sup>3</sup>	525	3.6	50.4	495	3.4	36.4	151	1.0	16.9
<b>Higher-priced loans in other counties</b>									
Asian	83	1.5	26.3	113	2.0	22.1	44	.8	5.6
Black or African American	1,709	17.7	44.4	572	5.9	19.8	121	1.3	3.4
Hispanic white	847	7.1	31.8	626	5.2	17.0	145	1.2	4.9
Non-Hispanic white	3,724	4.2	32.6	2,481	2.8	14.5	758	.8	3.5
All others <sup>3</sup>	980	6.7	35.2	542	3.7	17.7	132	.9	5.4
<b>Non-higher-priced loans in housing-bust counties<sup>2</sup></b>									
Asian	117	2.1	12.6	627	11.0	7.4	1,336	23.5	3.5
Black or African American	496	5.1	32.5	825	8.5	11.7	559	5.8	3.0
Hispanic white	586	4.9	33.1	1,734	14.5	20.6	1,590	13.3	9.6
Non-Hispanic white	1,881	2.1	21.0	7,257	8.1	8.7	14,218	15.9	1.8
All others <sup>3</sup>	373	2.6	25.0	1,452	10.0	10.7	2,593	17.8	2.6
<b>Non-higher-priced loans in other counties</b>									
Asian	213	3.7	11.1	947	16.6	2.9	1,926	33.8	.4
Black or African American	1,310	13.5	25.2	1,647	17.0	8.5	1,144	11.8	2.3
Hispanic white	893	7.5	16.0	1,621	13.6	6.0	1,371	11.5	1.4
Non-Hispanic white	5,271	5.9	15.7	17,574	19.6	4.3	33,105	36.9	.5
All others <sup>3</sup>	760	5.2	16.2	2,263	15.6	4.2	4,268	29.4	.6

Note: First-lien mortgages for owner-occupied one- to four-family homes in metropolitan statistical areas. Delinquency rate refers to the fraction of borrowers who became 60 or more days past due within two years of origination; shares in the table refer to the percentage of a given racial or ethnic group within the price-location-score cell.

The number of borrowers, by minority status, is as follows: Asian, 5,692; black or African American, 9,678; Hispanic white, 11,927; non-Hispanic white, 89,673; and all others (see note 3), 14,534.

<sup>1</sup> Borrowers are placed under only one category according to the race and ethnicity of the person listed first on the application.

<sup>2</sup> For definition of housing-bust counties, see note to figure C.1.

<sup>3</sup> All others consist of American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, and applicants for whom race or ethnicity was not reported.

Source: FFIEC HMDA data matched to FRBNY Consumer Credit Panel/Equifax.

**Table C.1. Delinquency rates for 2006 borrowers, by purpose of loan and by minority status, higher-priced loan status, location, and credit score****B. Refinance**

Percent except as noted

Minority status <sup>1</sup>	Credit score								
	Below 620			620–719			720 and above		
	<i>N</i>	Share	Delinq. rate	<i>N</i>	Share	Delinq. rate	<i>N</i>	Share	Delinq. rate
<b>Higher-priced loans in housing-bust counties<sup>2</sup></b>									
Asian	191	3.9	46.0	200	4.1	33.0	103	2.1	16.6
Black or African American	2,006	12.9	37.8	956	6.2	21.4	147	.9	10.6
Hispanic white	2,148	13.0	39.8	1,494	9.0	31.3	410	2.5	19.2
Non-Hispanic white	5,073	5.0	36.1	3,386	3.3	25.8	963	.9	9.7
All others <sup>3</sup>	2,728	10.1	39.6	1,532	5.6	26.5	371	1.4	10.1
<b>Higher-priced loans in other counties</b>									
Asian	128	2.6	22.7	142	2.9	22.2	39	.8	9.8
Black or African American	2,978	19.2	25.6	1,267	8.2	13.9	194	1.2	2.8
Hispanic white	866	5.2	26.3	582	3.5	21.5	127	.8	13.7
Non-Hispanic white	7,251	7.1	27.2	4,842	4.7	14.1	1,292	1.3	3.6
All others <sup>3</sup>	2,677	9.9	28.8	1,418	5.2	16.6	315	1.2	4.7
<b>Non-higher-priced loans in housing-bust counties<sup>2</sup></b>									
Asian	140	2.9	16.4	834	17.0	11.2	1,737	35.5	3.6
Black or African American	832	5.4	19.5	1,794	11.6	7.5	1,202	7.7	2.7
Hispanic white	1,135	6.9	19.5	3,941	23.8	11.4	3,469	21.0	4.9
Non-Hispanic white	3,068	3.0	18.9	13,115	12.8	8.3	20,606	20.2	2.0
All others <sup>3</sup>	1,276	4.7	18.7	4,249	15.7	9.3	5,195	19.2	2.1
<b>Non-higher-priced loans in other counties</b>									
Asian	92	1.9	8.6	502	10.3	4.6	789	16.1	.9
Black or African American	954	6.1	16.4	2,013	13.0	5.7	1,181	7.6	1.4
Hispanic white	355	2.1	13.4	1,135	6.9	6.6	864	5.2	3.0
Non-Hispanic white	3,668	3.6	14.1	15,244	14.9	4.6	23,570	23.1	.9
All others <sup>3</sup>	938	3.5	15.9	2,839	10.5	5.7	3,585	13.2	1.3

Note: See notes to table C.1.A.