Mortgage Market Note

A Study of First-Time Homebuyers

October 28, 2013

MORTGAGE MARKET NOTE 13-01[1]

Introduction

First-time homeownership[2] has long been a key focus of housing policy in the United States. Prior to the great recession, policymakers helped raise the homeownership rate in the U.S. with efforts that substantially increased the number of first-time owners. The focus on first-time homeownership has continued during and after the great recession. Many housing advocates, market experts and policymakers believe that achieving and maintaining a healthy share of first-time owners among homebuyers is crucial to the recovery and continued well-being of the housing market.[3,4]

This Mortgage Market Note[5] contributes to the discussion of first-time homeownership in two ways. Using twenty years of data, it provides a historical perspective on trends in the first-time homebuyer share of households purchasing principal residences. It also discusses changes in the loan characteristics of first-time homebuyers since the mid-1990s, focusing on mortgages purchased by Fannie Mae and Freddie Mac—collectively known as the Enterprises—and mortgages guaranteed by the Federal Housing Administration (FHA).

The analysis begins with a discussion of the first-time homebuyer shares[6] reported in two widely cited national surveys. The Note then estimates the portion of guarantees made by the Enterprises that were extended to first-time homebuyers. After that it compares the first-time homebuyer shares from the surveys with those estimated using loan-level data on mortgages purchased by the Enterprises and guaranteed by FHA. Lastly, it compares characteristics of first-time homebuyers and homebuyers purchasing their subsequent primary residences[7].

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[1] This mortgage market note was prepared by Saty Patrabansh of the Office of Policy Analysis and Research. The author gratefully acknowledges Andrew Leventis and Patrick Lawler for their valuable suggestions.

[2] Using a strict definition, a first-time homeowner is an individual who owns a primary residence for the first time but had never previously owned a principal residence. However, as discussed later in this Mortgage Market Note, the definition of first-time homebuyer used by Fannie Mae, Freddie Mac and FHA in their data systems is less restrictive.

[3] For example, the National Association of Realtors considers first-time homebuyers "critical to a housing recovery because they help existing homeowners to sell and make a trade." See http://www.realtor.org/news-releases/2012/11/nar-survey-of-home-buyers-and-sellers-shows-dual-income-couples-fueling-market

[4] Here are two government announcements highlighting the first-time homebuyer tax credit program: http://portal.hud.gov/hudportal/HUD?src=/press/press_releases_media_advisories/2009/HUDNo.09-072 and http://www.irs.gov/uac/Expanded-Tax-Break-Available-for-2009-First-Time-Homebuyers.

[5] Mortgage Market Note is henceforth referred to as the Note.

[6] First-time homebuyer share is generally calculated by dividing the number of first-time homebuyers with the number of all homebuyers for principal (or primary) residences. First-time homebuyer share can also be calculated with respect to the number of all homebuyers including purchasers of second and investment homes.

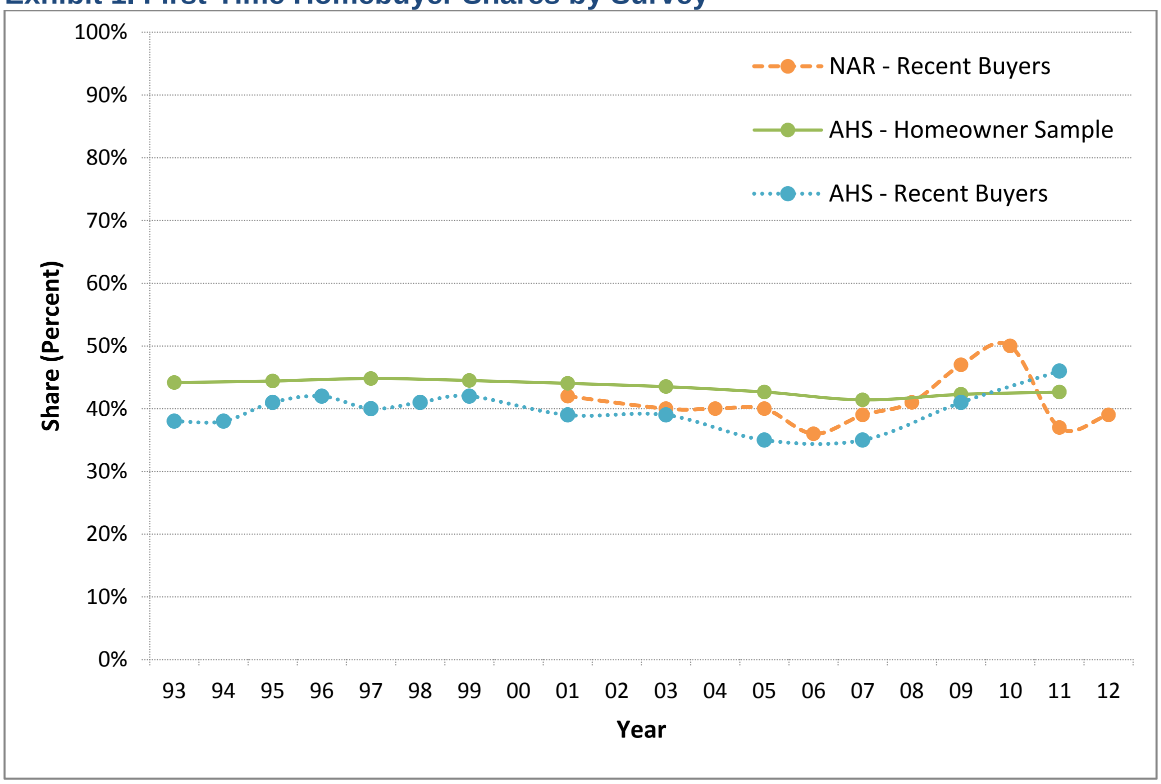
[7] These homebuyers are called move-up buyers or repeat homebuyers in the literature.

First-Time Homebuyer Shares from National Surveys[8]

The first goal of this Note is to discuss the first-time homebuyer shares reported in the news and research publications. The two most cited sources of first-time homebuyer shares are the Survey of Home Buyers and Sellers conducted by the National Association of Realtors (NAR) and the American Housing Survey (AHS) sponsored by the U.S. Department of Housing and Urban Development (HUD) and conducted by the U.S. Census Bureau.

The first-time homebuyer share reported in the news often comes from the NAR survey. Since 2001, NAR has conducted an annual national survey of homebuyers who purchased homes between July of the previous year and June of the survey year.[9] The NAR survey asks the responding homebuyers if the home purchase was their first. The orange dashed series in Exhibit 1 shows the NAR estimates of the first-time homebuyer share from 2001 to 2012.[10] The NAR estimates have generally fluctuated around 40 percent. In fact, this forty percent share has become a baseline "rule of thumb" for U.S. first-time homebuyer share.

Exhibit 1. First-Time Homebuyer Shares by Survey



Source: NAR's Survey of Home Buyers and Sellers and AHS as reported by U.S. Census Bureau, HUD and NAHB.

The time series of NAR estimates shows small but significant changes over the last decade. The NAR estimate dropped from 42 percent in 2001 to 40 percent in 2003 through 2005 and went

[8] The denominator used for calculating first-time homebuyer shares differs from one survey to next and is discussed in this section.
[9] NAR did not conduct the homebuyer and seller survey in 2002.
[10] The first-time homebuyer shares by survey are also presented in Appendix Table 1 in addition to Exhibit 1.

further down to 36 percent in 2006. Then it steadily increased from 39 percent in 2007 to a high of 50 percent in 2010 coinciding with the first-time homebuyer tax credit program.[11] It then fell once again to 37 percent in 2011 and 39 percent in 2012 after the tax credit program expired.

The NAR survey has two shortcomings.[12] First, because nearly but not all the properties included in the NAR survey are primary residences, the NAR estimates of the first-time homebuyer share do not completely exclude second and investment properties or fully account for them. Second, the response rate of the survey is very low (the response rate was only 9 percent for over 90,000 households surveyed in 2012) and there is potential for bias due to the high non-response rate.

The second source of the reported first-time homebuyer share is the American Housing Survey (AHS), often cited by government and research publications. AHS has a large nationally representative sample of over 60,000 housing units and a high response rate (over 90 percent in 2009). It is released in odd years and each survey covers two years.[13] The AHS asks homeowners whether they ever owned a home prior to their current home. Because the AHS surveys a sample of all homeowners—not just a sample of recent homebuyers—the primary statistic on first-time owners available in the AHS reports is based on a cross-section of all homeowners and thus is the share of homeowners who are living in their first owned homes. The green lined series in Exhibit 1 shows that the first-time homeowner shares from 1993 to 2011 were somewhat higher than 40 percent. The share of first-time homeowners was consistently 44 to 45 percent from 1993 to 2003 and dropped steadily to 41 percent by 2007 and rose back to 43 percent by 2011. While this statistic is valuable in its own right, it cannot be compared to the first-time homebuyer share from the NAR survey because of the slight difference in definition.

To compare the first-time homebuyer shares from the AHS and the NAR surveys, the AHS first-time homebuyer share can be calculated using only the AHS homeowners who purchased their properties recently. The blue dotted series in Exhibit 1 shows the first-time homebuyer shares calculated by HUD from 1993 to 1999 and by the National Association of Home Builders (NAHB) from 2001 to 2011 using such an approach.[14] Like the NAR estimates, the first-time homebuyer shares computed from the AHS also fluctuated around 40 percent. This consistency between the two surveys has reinforced the common belief that the first-time homebuyer share in the U.S. is approximately 40 percent.

On close inspection, the AHS first-time homebuyer shares can be seen to be lower than the NAR first-time homebuyer shares for most of the time periods when both series are available. The two likely reasons for this discrepancy are measurement-related. First, there is a difference in the

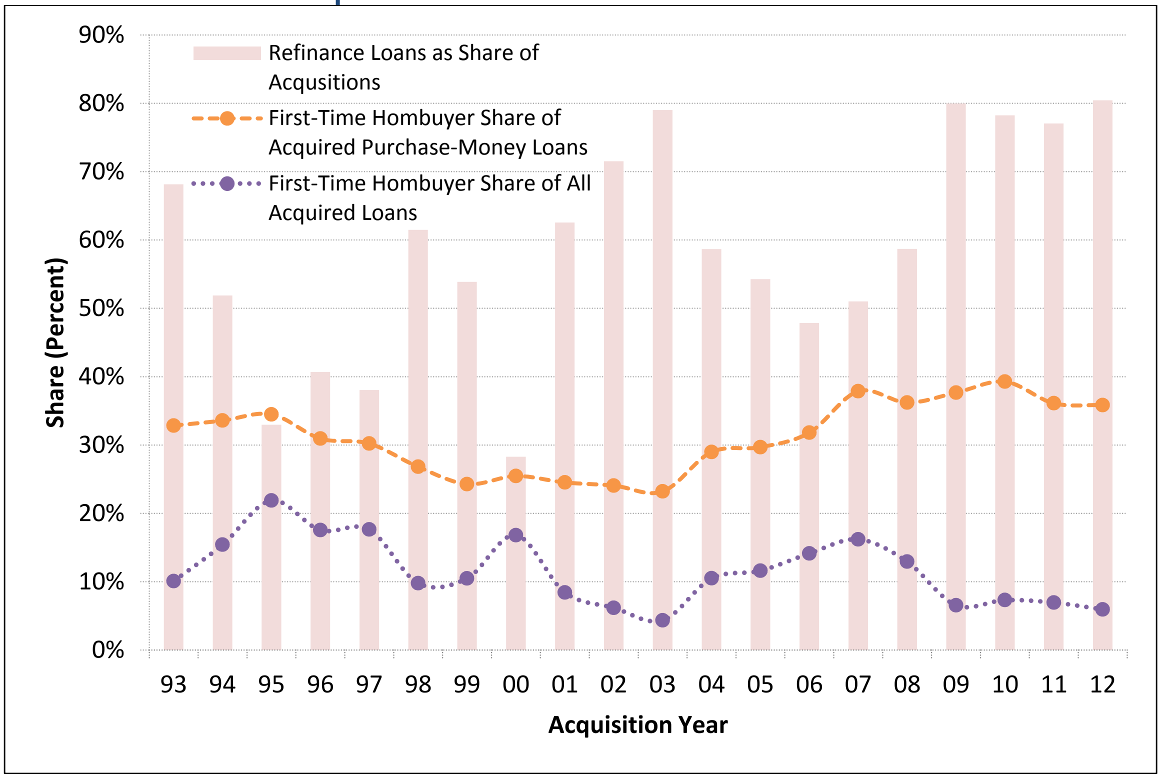
[11] See government announcements of the program in footnote 2.
[12] See Profile of Home Buyers and Sellers (2012) by National Association of Realtors at http://www.realtor.org/topics/profile-of-home-buyers-and-sellers
[13] See http://www.census.gov/housing/ahs/ and http://www.census.gov/prod/2011pubs/h150-09.pdf for the 2009 AHS report.
[14] HUD used the sample of households that purchased properties during the year before the survey to compute the annual AHS first-time homebuyer shares from 1993 to 1999. By contrast, NAHB used the sample of households that purchased properties during the two years before the survey for the biannual AHS first-time homebuyer shares from 2001 to 2011. See http://www.huduser.org/periodicals/USHMC/fall2001/sum_tab_2.html and http://www.nahb.org/fileUpload_details.aspx?contentTypeID=3&contentID=196904&subContentID=494013.

timing of the two surveys. While the NAR survey captures the first-time homebuyer share from July of the previous year to the June of the survey year, the AHS is a biannual survey and the first-time homebuyer share from the AHS reflects an average over a two year-period. Second, the NAR survey has a low response rate. Because of the low response rate of the NAR survey, the NAR estimates are likely to have a wide confidence band, which means that the range of possible values is relatively large. Accounting for the difference in the timing of the two surveys and statistical imprecision of the NAR estimates, it is reasonable to consider that both surveys provide consistent estimates of the first-time homebuyer share.

First-Time Homebuyer Shares of Enterprise Business Activity

The second goal of this Note is to estimate the share of the guarantees made by the Enterprises that were extended to the loans of first-time homebuyers. It attempts to answer the question, "What proportion of the Enterprises' overall loan guarantee business was devoted to supporting home purchases by first-time homebuyers?"

Exhibit 2. First-Time Homebuyer Shares and Purchase-Refinance Breakdown of the Enterprise Loans



Source: FHFA loan-level data of purchase and refinance loans from Fannie Mae and Freddie Mac.

The first-time homebuyer shares for the Enterprises using loan counts by acquisition years are shown in Exhibit 2.[15] The orange dashed series represent the first-time homebuyer share of

[15] The share of overall activity is calculated both on a unit and dollar-weighted basis for 1993-2012. Specifically, the shares are calculated using both the proportion of loans and the proportion of the total unpaid loan balance of loan acquisitions. Only the shares based on loan counts are shown here because shares based on acquisition balance are

purchase money mortgage loans for primary residences.[16] The purple dotted series represent the first-time homebuyer share for all loans.[17] The Exhibit also shows the refinance and purchase breakdown for each acquisition year. The red horizontal bars depict the refinance shares and the remainders are the purchase shares.

Three clear observations can be made from Exhibit 2. First, as a share of purchase money mortgages for primary residences, first-time homebuyers have accounted for approximately 25 to 40 percent of the Enterprises' loan purchases over the last 20 years. Second, as a share of the Enterprises' overall business, the guarantee of home purchases by first-time homebuyers represents a relatively small share of the Enterprises' overall business. The first-time homebuyer share did not exceed 20 percent in any year since 1993, and in most years was closer to 10 percent. Third, as expected, there is an inverse relationship between the first-time homebuyer share and the share of overall Enterprise activity for refinance mortgages. When the refinance mortgage share rose, the first-time homebuyer share of all Enterprise guarantee activity fell and vice versa. The first-time homebuyer shares were particularly low in the years 1993, 2003 and 2009-2012—years with large booms in refinance activity. In 2011 and 2012, for example, only about 5 to 6 percent of the Enterprises' guarantee activity went toward guaranteeing home purchases by first-time homebuyers.

First-Time Homebuyer Shares from Mortgage Market Data

The third goal of this Note is to determine whether the first-time homebuyer shares from national surveys cited in the news and publications discussed above are consistent with the first-time homebuyer shares calculated using micro-level property purchase data and to understand the reasons for any differences. The ideal purchase data would include all property purchases in the U.S., including purchases made with cash and those financed with mortgages. However, many of the data sources that might be used for such an analysis do not include information about whether the purchaser of a property was a first-time homebuyer.

Fortunately, an indicator for first-time homebuyer status is available in mortgage data the Federal Housing Finance Agency (FHFA) collects from the Enterprises. Loan-level data provided to FHFA by the Federal Housing Administration (FHA) also includes a first-time homebuyer indicator. Individually and collectively, the Enterprises and FHA data provide a very large data sample for estimating the first-time homebuyer share.

This section presents first-time homebuyer shares based on these loan-level datasets. The underlying data include information on purchase-money mortgages[18] used to finance primary residences. In the remainder of this Note, these are called "purchase loans."

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similar. The first-time homebuyer shares by acquisition year are also presented in Appendix Table 2. First-time homebuyer shares of purchase money loans by origination year are discussed in the next section.

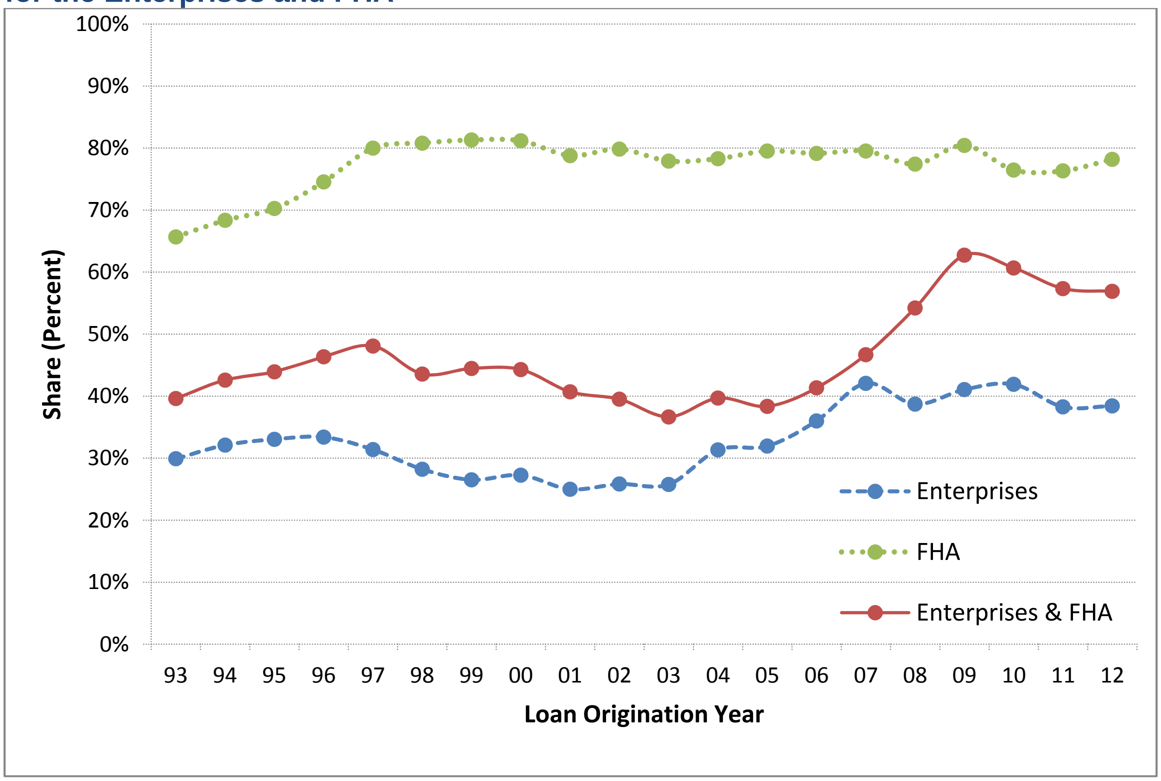
[16] The first-time homebuyer shares for all purchase loans, not discussed in this Note, are somewhat lower than the purchase loans for primary residences.

[17] All first-lien purchase loans, including mortgages for second and investment properties, and refinance loans are included but second-lien loans and home improvement loans are excluded in the sample used in this Note.

[18] The extent to which first-time homebuyers have refinanced their original loans is not a subject of analysis in this Note or in most other literature.

Exhibit 3 shows the first-time homebuyer shares by loan origination year.[19] Looking at Exhibit 3, it is evident that first-time homebuyers took out nearly eight out of ten purchase loans insured by FHA.[20] This is consistent with FHA's mission of maintaining and expanding homeownership with an emphasis on low-wealth families and first-time homeowners.[21] The green dotted series on the top presents the FHA first-time homebuyer shares. The share of first-time homebuyers increased steadily from 66 percent in 1993 to 80 percent in 1997 and stayed relatively stable at around 80 percent between 1997 and 2009. Then it fell slightly from 80 percent to 76 percent in 2010 and 2011 and rose up again to 78 percent in 2012.

Exhibit 3. First-Time Homebuyer Shares of Purchase-Money Loans for the Enterprises and FHA



Source: FHFA loan-level data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

In contrast to FHA, first-time homebuyers took out only about a third of the purchase loans acquired by the Enterprises.[22] The blue dashed series in Exhibit 3 are the Enterprise first-time homebuyer shares. The Enterprises started with the first-time homebuyer share of 30 percent in 1993 and increased to 33 percent by 1995 before falling to 25 percent by 2001. After a couple of

[19] The first-time homebuyer shares by entity are also presented in Appendix Table 1 in addition to Exhibit 2.

[20] FHA effectively only guarantees purchase loans for primary residences at the time of origination, i.e. at the time of origination, the underlying property of an FHA loan has to be a primary residence, not a second or investment property. The FHA first-time homebuyer shares reported by FHA are consistent with the ones reported in this Note.

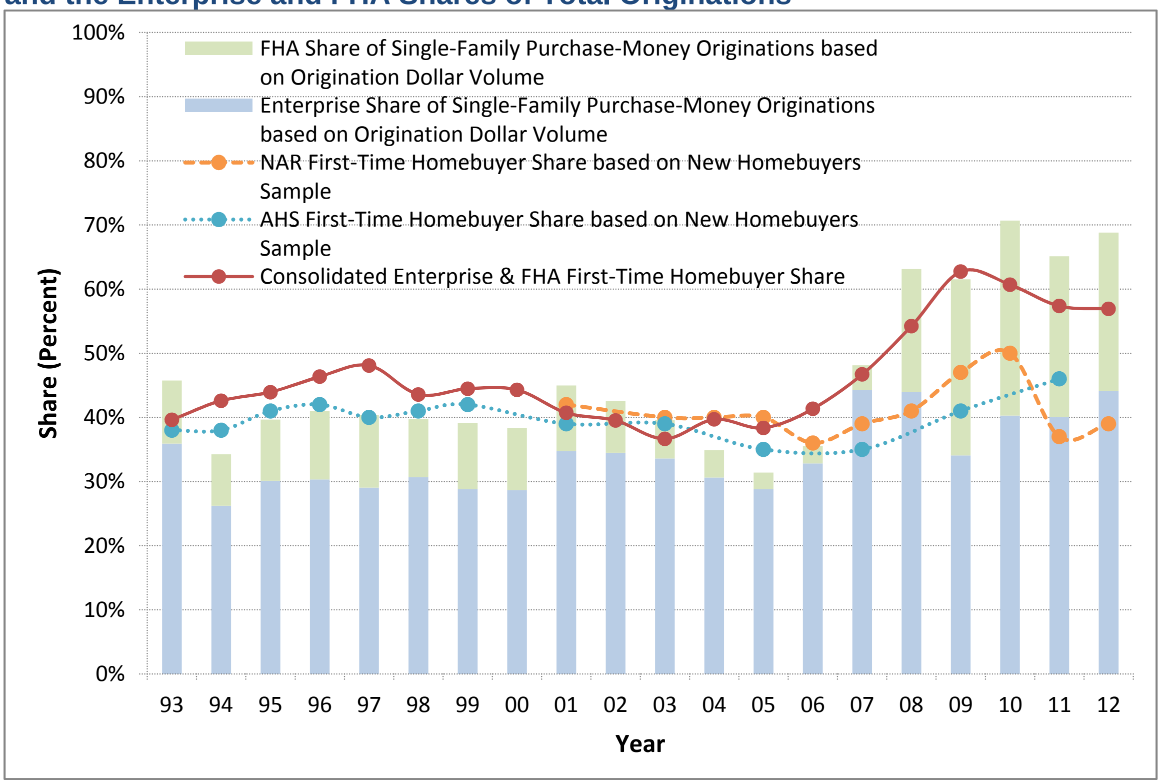
[21] See "The FHA Single-Family Insurance Program: Performing a Needed Role in the Housing Finance Market" by E. Szymanoski, W. Reeder, P. Raman and J. Comeau (HUD PD&R Working Paper No.HF-019) at http://www.huduser.org/portal/publications/hsgfin/fha_singlefamily_dec2012.html.

[22] The first-time homebuyer shares of purchase loans reported in this Note are consistent with the first-time homebuyer shares reported in the annual housing activities reports submitted by Fannie Mae and Freddie Mac. See http://www.fhfa.gov/Default.aspx?Page=135.

years of stability, the Enterprise first-time homebuyer share steadily climbed up to a high of 42 percent by 2007 and has since fluctuated around 40 percent.

Since the Enterprise and FHA first-time homebuyer shares differ from one another over time, a consolidated Enterprise and FHA first-time homebuyer share was calculated to facilitate the comparison of the estimates from purchase data to the estimates from the national surveys discussed in the previous section. This time series was calculated by dividing the number of Enterprise and FHA loans to first-time homebuyers in each origination year by the total number of Enterprise and FHA purchase loans in that year. The consolidated Enterprise and FHA first-time homebuyer share is depicted as a red lined series in Exhibit 2. This time series reflects the changes in the composition of the first-time homebuyer loans. As the share of FHA loans grew among the first-time homebuyer loans starting in 2008, the consolidated Enterprise FHA share moved closer to FHA's first-time homebuyer share and away from the first-time homebuyer shares of the Enterprises.

Exhibit 4. Comparison of First-Time Homebuyer Shares and the Enterprise and FHA Shares of Total Originations



Source: FHFA loan-level data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA. NAR's Survey of Home Buyers and Sellers and AHS as reported by U.S. Census Bureau, HUD and NAHB. Estimates of total single-family purchase-money originations to compute the Enterprise and FHA share were obtained from MBA.

The consolidated Enterprise and FHA first-time homebuyer shares from Exhibit 3 and the NAR and AHS first-time homebuyer shares from Exhibit 1 are replicated in Exhibit 4 for comparison. The consolidated shares were very close to—but usually slightly above—the NAR and AHS estimates at least up to about 2006. That the consolidated Enterprise and FHA estimate is slightly above the survey estimates is not surprising given the way the Enterprises and FHA identify first-time homebuyers. In particular, the Enterprises and FHA first-time homebuyer definition includes homebuyers who did not own a primary residence in the last three years but owned a property prior to that. The definition also includes homebuyers who previously co-owned a property with a former spouse and homebuyers with other considerations.[23] Therefore the true first-time homebuyer share for the Enterprises and FHA would be somewhat below the red line series depicted in Exhibit 4.

Starting in 2006, the consolidated Enterprise and FHA first-time homebuyer share started diverging considerably from the AHS and NAR first-time homebuyer shares. In particular, the Enterprise and FHA share grew at a much faster rate than the other estimates. Given that the collective market share of the Enterprises and FHA grew considerably over this time frame, this outcome is somewhat unexpected. As the entities accounted for the lion's share of the entire market by 2011, under the presumption that the NAR and AHS estimates represent unbiased measures of the overall first-time homebuyer share, one would expect that the Enterprise and FHA share would resemble or possibly converge to the other estimates. That is, however, not the case. One possible explanation is the inclusion of properties fully paid with cash in the NAR and AHS estimates but not in the consolidated Enterprise and FHA estimates. In the post-recession period, the share of properties purchased without a mortgage rose dramatically.[24] Because all-cash purchases are more likely to be second and investment properties (and properties of repeat buyers to some extent) but less likely to be residences of first-time buyers, the NAR and AHS estimates of first-time homebuyer shares in 2009-2012 were lower than they would have been if the denominators reflected only properties purchased with mortgages (like the consolidated Enterprise and FHA estimates).

The colored bars in Exhibit 4 show the evolution of the single-family purchase-money market shares of the Enterprises and FHA over time. The estimates are derived using dollar volume of originations obtained from the Enterprises, FHA and Mortgage Bankers Association (MBA).[25] As shown by the blue slanted bars and green horizontal bars in Exhibit 4, the combined Enterprise and FHA shares of total loan originations were 46 percent in 1993; between 34 percent and 41 percent from 1994 to 2000; back to 45 percent in 2001 and 43 percent in 2002; and between 31 percent and 36 percent from 2003 to 2006. The share then climbed to 48 percent in 2007 and between 62 percent and 71 percent from 2008 to 2012.

Despite the definitional over-counting of first-time homebuyers in the Enterprise and FHA data and the divergence between the consolidated Enterprise and FHA share and other estimates in recent years, overall, the consistency between various estimates is notable. While none of the first-time homebuyer shares described in this Note is a perfect measure, the measures generally evolved similarly over the last 20 years. The precise share of first-time homebuyers is difficult to know for any given year, but the respective metrics all suggest broadly similar trends.

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[23] The complete definition of first-time homebuyer is in http://archives.hud.gov/offices/hsg/sfh/ref/sfhp3-02.cfm.

[24] A recent study by Goldman Sachs estimated that all-cash share of purchases increased from 30 percent of the dollar volume before the financial crisis to more than 60 percent in the post-crisis years. See http://blogs.wsj.com/developments/2013/08/15/report-half-of-all-homes-are-being-purchased-with-cash/.

[25] The Enterprise market share of single-family purchase-money mortgage originations for each year was computed as the dollar value of single-family purchase-money mortgage originations of the Enterprises divided by the MBA estimated dollar value of the overall single-family purchase-money mortgage originations for that year. The FHA market share of single-family purchase-money mortgage originations for each year was calculated similarly.

Comparisons of First-Time Homebuyers with Repeat Homebuyers[26]

The fourth and last goal of this Note is to compare first-time homebuyers with repeat homebuyers who are purchasing their subsequent principal residences. Discussion in this section is focused on a few key borrower, property and loan characteristics at the time of loan origination: borrower age, monthly income, credit score, property type, property value, loan type, loan amount, loan-to-value ratio and debt-to-income ratios. For each characteristic, a comparison of distributions[27] for the pool of mortgages originated from 2009 to 2012 is followed by time-series comparisons for each origination year from 1996 to 2012.[28] Most comparisons show aggregate first-time (solid blue line) and repeat homebuyer (dashed red line) differences for the combined pool of Enterprise and FHA loans. However, because the Enterprise and FHA market shares of purchase-money mortgages have changed over time, some aggregate differences may reflect Enterprise and FHA differences rather than first-time and repeat homebuyer difference.[29] In such cases, select comparisons are made separately for the Enterprises (lines without markers) and FHA (lines with circular markers).

Borrower Age: As expected, first-time homebuyers are younger than repeat homebuyers. The age distributions of borrowers shown in Exhibit 5A illustrate this point; the first-time homebuyer age distribution depicted on the left by the solid blue line is thinner and taller than the repeat homebuyer distribution depicted on the right by the dashed red line.[30] The estimated relative frequency in the vertical axis allows comparison of first-time and repeat homebuyer distributions at each age. For example, more than 5 percent of first-time homebuyers were at the peak (or mode) of their age distribution of 27 years where fewer than 2 percent of repeat homebuyers were. By contrast, about 3 percent of repeat homebuyers were at the peak of their age distribution of 34 years and roughly the same percentage of first-time homebuyers were 34 years of age as depicted by the intersection of the two age distributions.[31]

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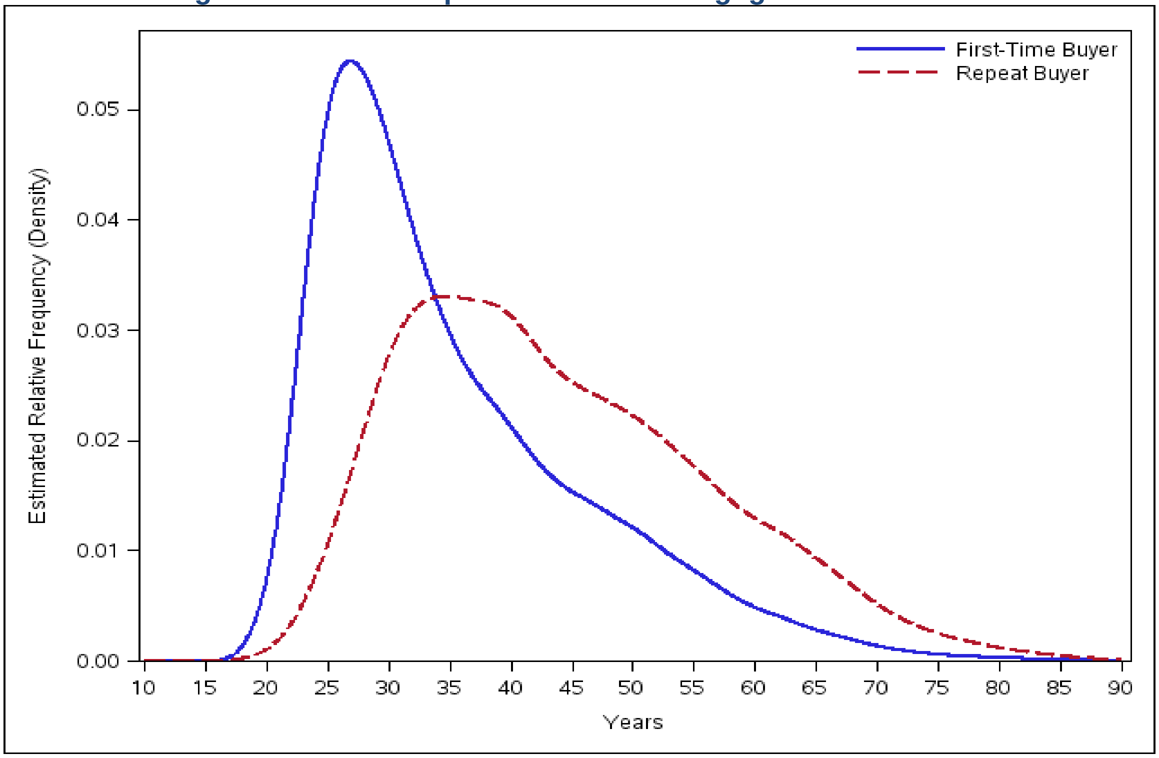
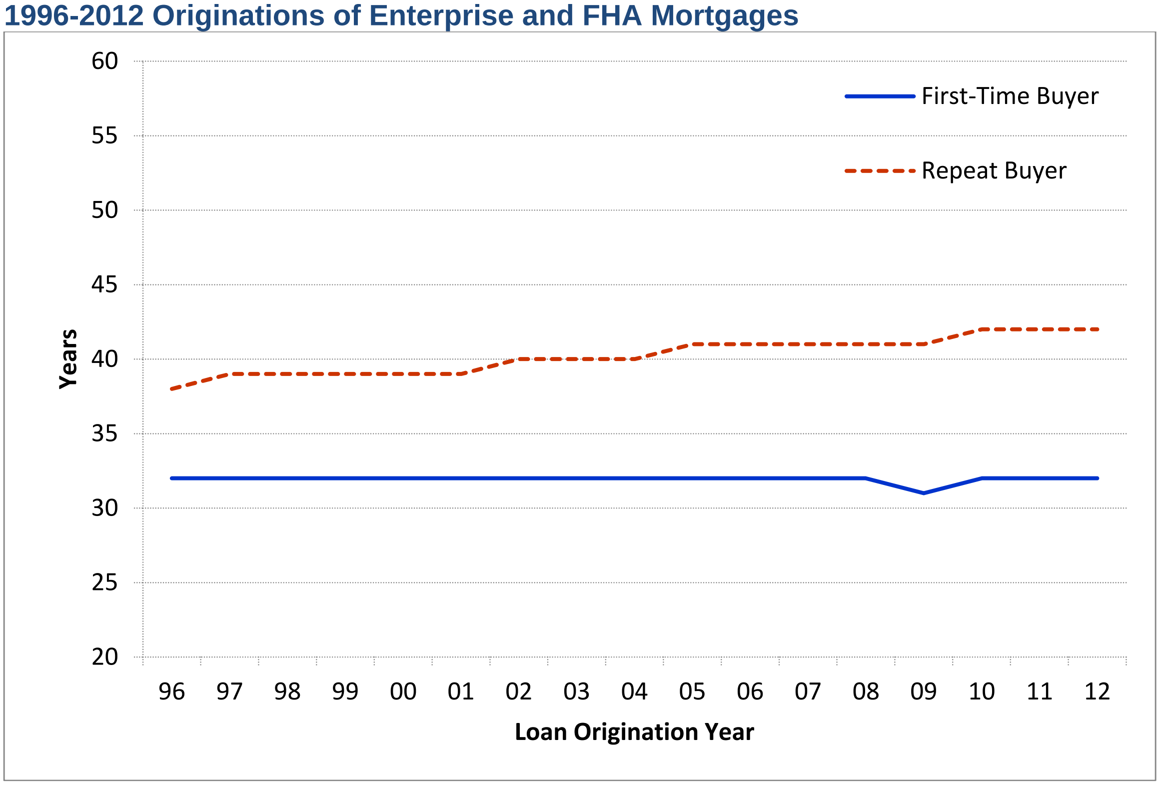
[26] Detailed comparisons are also included in Appendix Tables 3s and Appendix Exhibits 4s and 5s. First-time homebuyer status is missing for about 7 percent of Enterprise borrowers purchasing primary residences and those borrowers are excluded from all comparisons. Missing rates for characteristics are presented in Appendix Exhibits 4s. Most characteristics are missing for 3 percent or fewer borrowers and such small missing rates are not reported.
[27] A statistical technique known as kernel density with smoothing was used to create the distribution plots. Information about this technique can be found in any standard econometric or statistic textbook such as Econometric Method by Jack Johnson and John DiNardo (4th edition, McGraw Hill, 1996) and also statistical software user guides such as http://support.sas.com/documentation/cdl/en/statug/63347/HTML/default/viewer.htm#statug_kde_sect012.htm.
[28] The data with first-time homebuyer status could not be linked with the loan-level mortgage data of one of the Enterprises for 1993-1995. Therefore, the time-series comparisons presented only cover 1996 to 2012.
[29] As the Enterprise and FHA market shares of purchase-money mortgages changed over time, the composition of the combined Enterprise and FHA data sample also changed. In 1993, FHA first-time homebuyers comprised 45 percent of all first-time homebuyers in the combined Enterprise and FHA data sample. Over time that relative share changed substantially. By 1999, FHA loans made up 60 percent of the sample, but that share dropped to 21 percent in 2007. The share again rose to 71 percent in 2009 and then tapered off to 64 percent by 2012. By contrast, the Enterprise repeat homebuyers comprised 85 percent of all repeat homebuyers in the combined Enterprise and FHA data sample in 1993. That share increased to 96 percent by 2007 and then dropped to 67 percent in 2010 only to climb again to 76 percent by 2012. In 2009-2012, two out three first-time homebuyers had an FHA loan and seven out of ten repeat buyers had an Enterprise loan.
[30] However, Enterprise first-time and repeat homebuyers are slightly older than their FHA equivalents.
[31] It should be noted that the kernel density on the y-axis does not easily translate to percentages; what it shows is the estimated relative frequency of the kernel used to approximate the distribution with a unit area.

Exhibit 5A. Distributions of Borrower Age by Homebuyer Type, 2009-2012 Originations of Enterprise and FHA Mortgages



Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Exhibit 5B. Time-Series of Median Borrower Age by Homebuyer Type, 1996-2012 Originations of Enterprise and FHA Mortgages

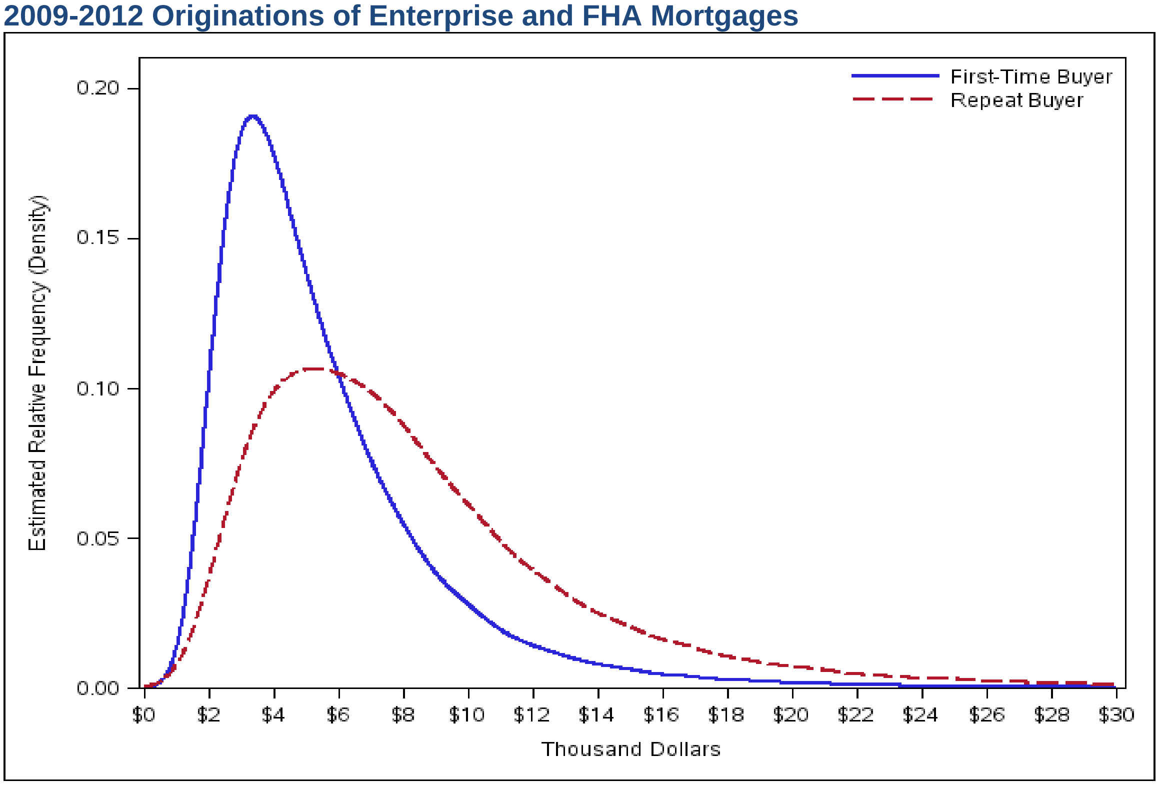


Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Exhibit 5B presents the time-series comparison of median age. While the median age of first-time homebuyers remained virtually unchanged at 32 years since 1996, the median age of repeat homebuyers increased slightly from 38 years in 1996 to 42 years in 2012. As a result, the age spread widened from 6 years in 1996 to 10 years in 2012.

Borrower Income: Being younger, first-time homebuyers also have lower income than repeat homebuyers. This is demonstrated by the distributions of borrowers' monthly income in Exhibit 6A.[32] The first-time homebuyer income distribution is narrower and more elongated than the repeat homebuyer distribution. Exhibit 6B shows that the first-time homebuyer median monthly income increased to nearly $5,000 ($60,000 per annum) in 2008 from about $3,500 ($42,000 per annum) in 1996 and then dipped to $4,600 ($55,000 per annum) in 2009-2012. This dip is attributable to the general decline after 2008 in the income of first-time FHA borrowers, who account for the two-thirds of first-time homebuyers in 2009-2012.[33] In contrast to the first-time buyer monthly income, the repeat homebuyer median monthly income increased steadily from about $4,500 ($55,000 per annum) in 1996 to the 2009-2012 level of over $7,000 ($86,000 per annum). Therefore, the spread in median incomes of first-time and repeat buyers increased slightly from $1,800 or less up until 2008 to about $2,500 thereafter. In other words, median income of repeat homebuyers was about 30 to 40 percent higher than the median income of first-time homebuyers until 2008 but afterwards it was almost 60 percent higher.

Exhibit 6A. Distributions of Borrower Monthly Income by Homebuyer Type, 2009-2012 Originations of Enterprise and FHA Mortgages



Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

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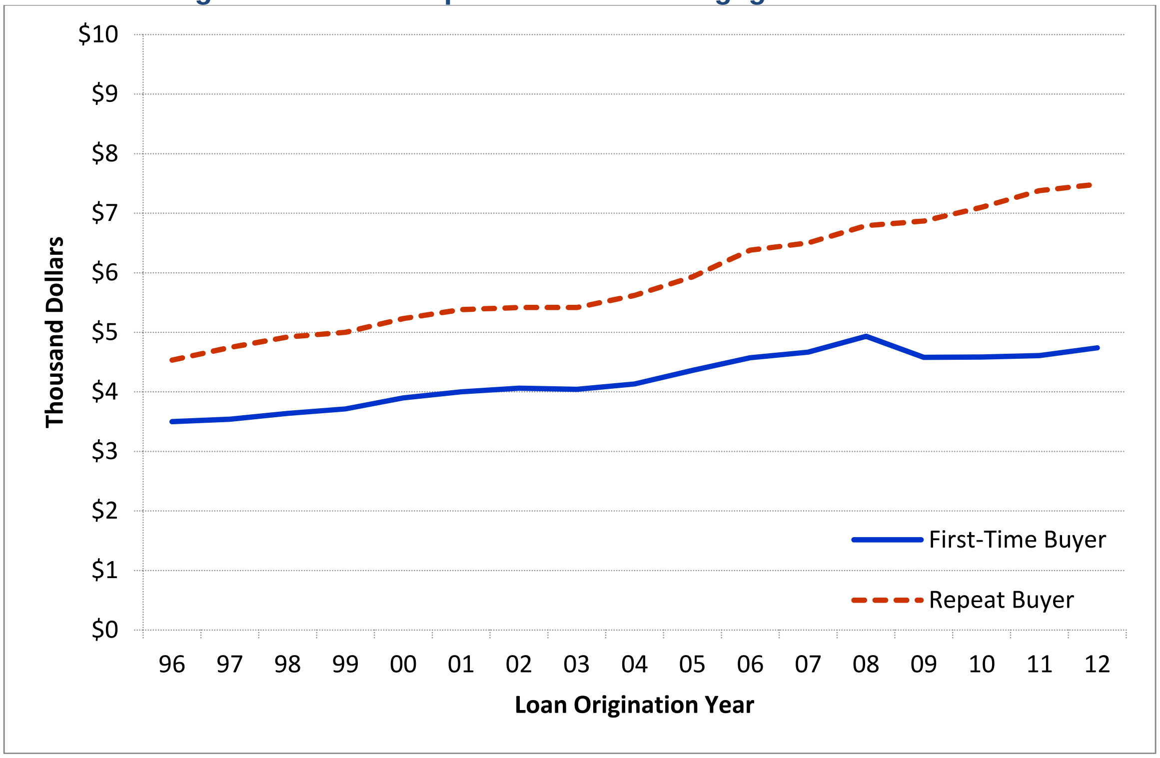
32 Enterprise first-time and repeat homebuyers have somewhat higher income than their FHA equivalents.
33 The lower income for FHA first-time homebuyers in recent years is also shown by Szymanoski et al. (see footnote16).

Exhibit 6B. Time-Series of Median Borrower Monthly Income by Homebuyer Type, 1996-2012 Originations of Enterprise and FHA Mortgages



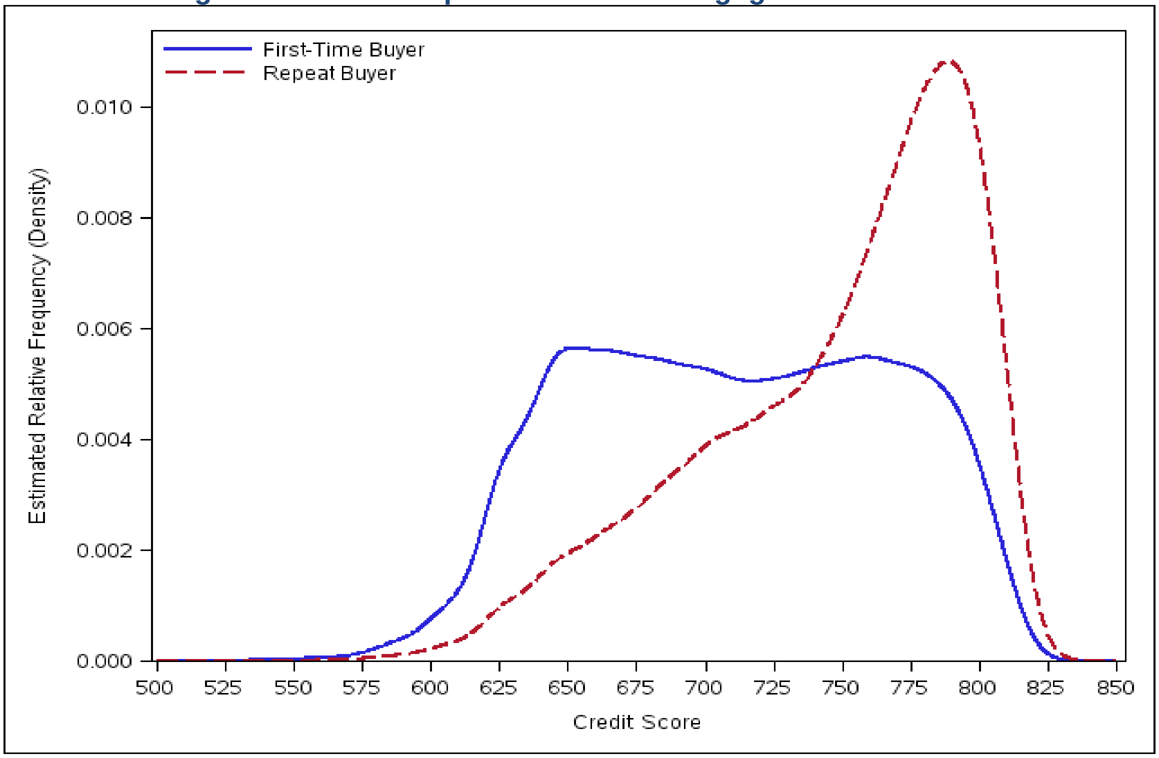
Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Borrower Credit Score: First-time homebuyers, who are younger and have lower income, also have lower credit scores than repeat homebuyers. As shown in Exhibits 7A and 7B, the credit score distribution of first-time homebuyers has two humps; the lower hump is centered around the FHA first-time homebuyer median credit score of 685 and the upper hump straddles the Enterprise first-time homebuyer median credit score of 757. In contrast to the first-time homebuyer scores, the credit score distribution of repeat homebuyers is primarily centered on the Enterprise repeat homebuyer median credit score of 772 with a much smaller bump close to the FHA repeat homebuyer median credit score of 710.

As credit standards tightened after the recession, credit scores of homebuyers increased to a much higher level in 2009-2012 than in prior years as shown in Exhibit 7B. The increase in the median credit score was bigger for FHA homebuyers (61-73 points from 624-634) than Enterprise homebuyers (34-54 points from 702-735). Moreover, the spread in the median credit scores of first-time and repeat homebuyers was also bigger for FHA borrowers (25 points) than the Enterprise borrowers (14 points). Prior to this overall increase in credit scores, the median credit scores of Enterprise and FHA first-time homebuyers dipped roughly 15 points from 2005 to 2007. The spread in the median credit scores of the Enterprise first-time and repeat homebuyers was around 15 points from 1996 to 2005, a 10-year period when the median credit scores increased only slightly.[34]

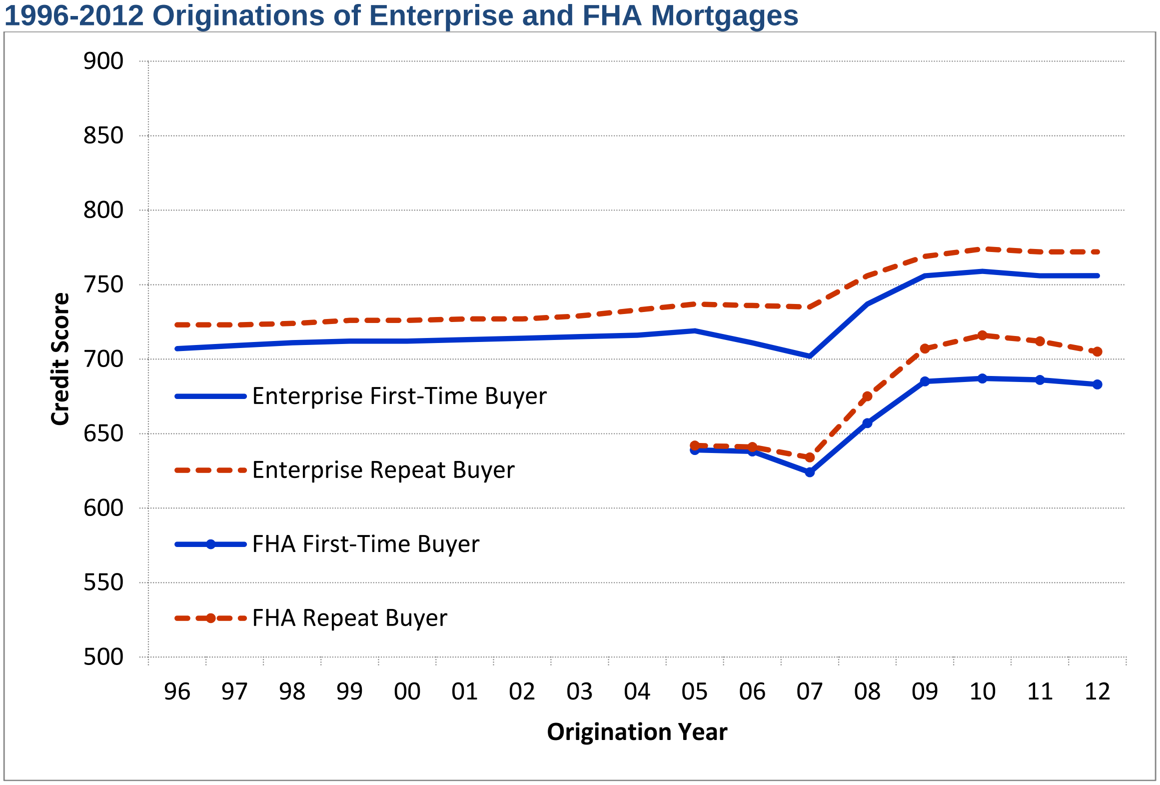
[34] A similar discussion of credit scores for FHA homebuyers from 1996 to 2005 is not possible because credit score data for FHA are not available prior to 2005.

Exhibit 7A. Distributions of Borrower Credit Score by Homebuyer Type, 2009-2012 Originations of Enterprise and FHA Mortgages



Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

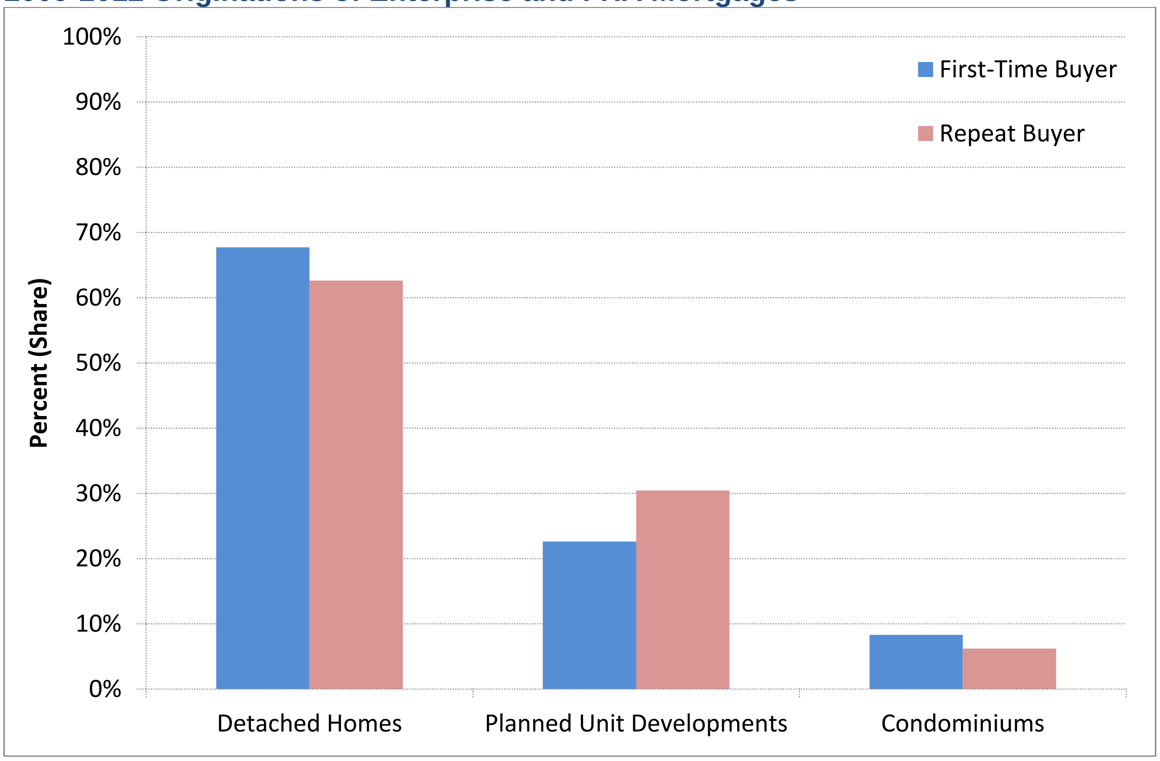
Exhibit 7B. Time-Series of Median Borrower Credit Score by Homebuyer Type, 1996-2012 Originations of Enterprise and FHA Mortgages



Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Property Type: First-time homebuyers purchase more single-family detached houses and condominiums and fewer planned unit development (PUD)[35] properties than repeat homebuyers. Exhibit 8 presents the property types for mortgages originated in 2009-2012—68 percent of first-time homebuyers purchased single-family detached houses compared to 63 percent of repeat homebuyers, 23 percent of first-time buyers purchased PUD properties compared to 30 percent repeat buyers, and 8 percent for first-time buyers purchased condominiums compared to 6 percent of repeat buyers. Historically a much higher percent of homebuyers used to purchase detached houses (nearly 20 percentage points more in 1996 than 2009-2012).[36] However, PUD properties have replaced part of the share (about 20 percentage points) held by detached houses.[37]

Exhibit 8. Property Type by Homebuyer Type,
2009-2012 Originations of Enterprise and FHA Mortgages



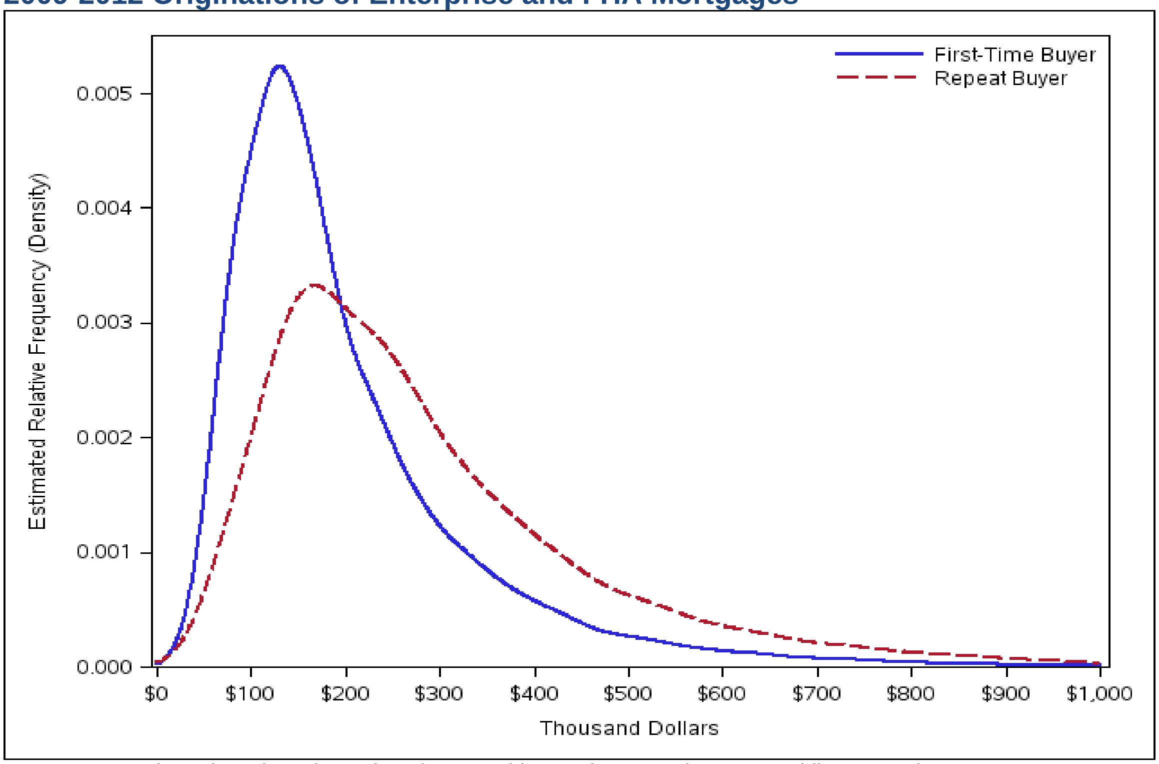
Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA

[35] A PUD is defined as a mixed-use residential development of single-family dwellings in conjunction with rental, condominium, cooperative or town house properties. Specifically, Fannie Mae defines it as a project or subdivision that consists of common property and improvements that are owned and maintained by an HOA for the benefit and use of the individual PUD units. In order for a project to qualify as a PUD, each unit owner's membership in the HOA must be automatic and non-severable, and the payment of assessments related to the unit must be mandatory. (See https://www.fanniemae.com/content/guide/sel082013.pdf). HUD/FHA defines it to have the following minimum characteristics (See http://www.hud.gov/offices/adm/hudclips/handbooks/hsgh/4150.2/41502c9HSGH.pdf): (1) a homeowner association that holds either title in fee or a lease of prescribed length on the common area; (2) mandatory membership of all unit owners (or units) in the association; (3) the right of all unit owners to participate by vote in the operation of the association; and (4) lien supported assessment of the members to meet the association's budgeted operating costs (special assessments may be handled differently).
[36] Not shown in the exhibit. In 1996, 86 percent of first-time buyers and 85 percent of repeat buyers purchased detached houses and 5 percent of first-time buyers and 9 percent of repeat buyers purchased PUD properties.
[37] One reason for this change could be idiosyncrasies and inconsistencies in reporting property type over time.

Property Value*[38]*: First-time homebuyers, who have been shown to be younger and have lower income as well as credit score than repeat buyers, also purchase properties that cost less. Exhibit 9A shows the property value distributions for 2009-2012. The first-time homebuyer property value distribution with the median around $164,000 is taller and narrower than the repeat homebuyer property value distribution with the median around $240,000. Moreover, Exhibit 9B shows that properties bought by Enterprise borrowers had median value nearly $78,000 to $90,000 higher than properties bought by FHA borrowers. In fact, the median property value of an Enterprise first-time buyer was $41,000 more than the median property value of an FHA repeat buyer in recent years.

While the median property values have generally remained stable from 2009 to 2012, they steadily increased from 1996 to 2008 as shown in Exhibit 9B. The spread in the median property value of Enterprise first-time and repeat homebuyers more than doubled from about $23,000 in 1996 to about $49,000 in 2009-2012. Correspondingly, the spread in the median property value between the FHA first-time and repeat homebuyers grew more than seven times from about $4,000 in 1996 to about $37,000 in 2009-2012.

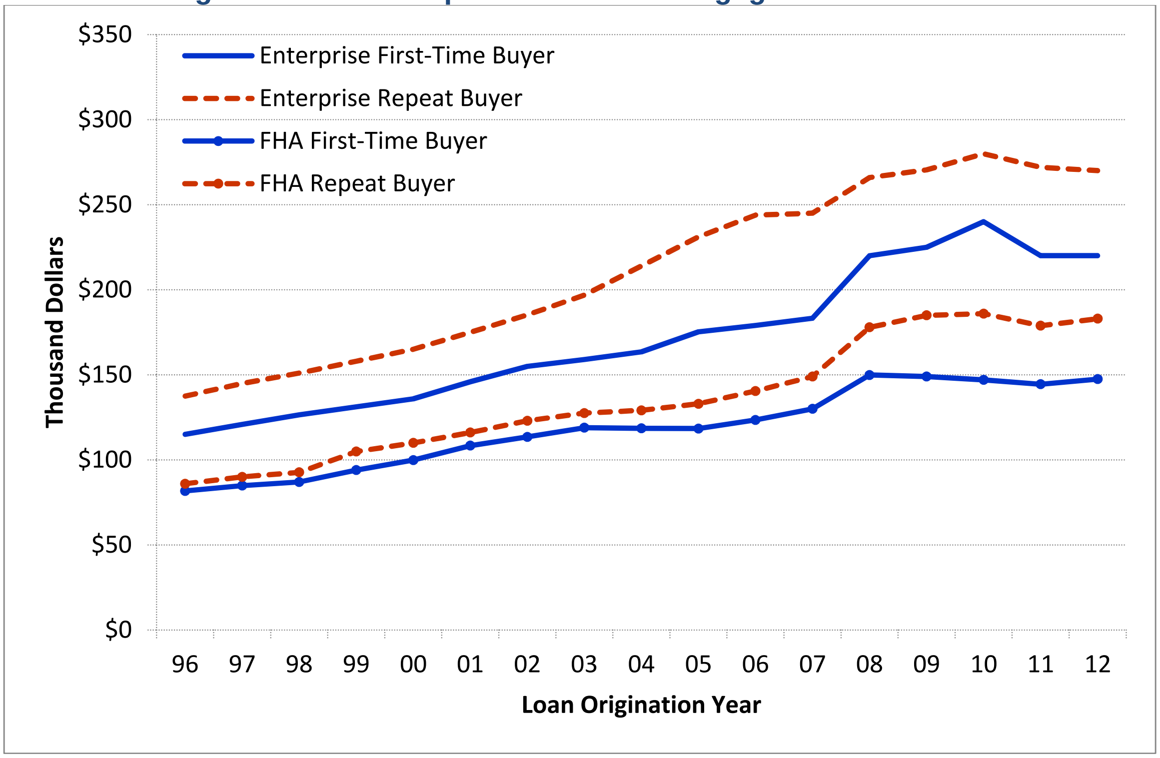
Exhibit 9A. Distributions of Property Value by Homebuyer Type, 2009-2012 Originations of Enterprise and FHA Mortgages



Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

[38] Property value is determined as the lesser of the sales price and the appraised value.

Exhibit 9B. Time-Series of Median Property Value by Homebuyer Type, 1996-2012 Originations of Enterprise and FHA Mortgages



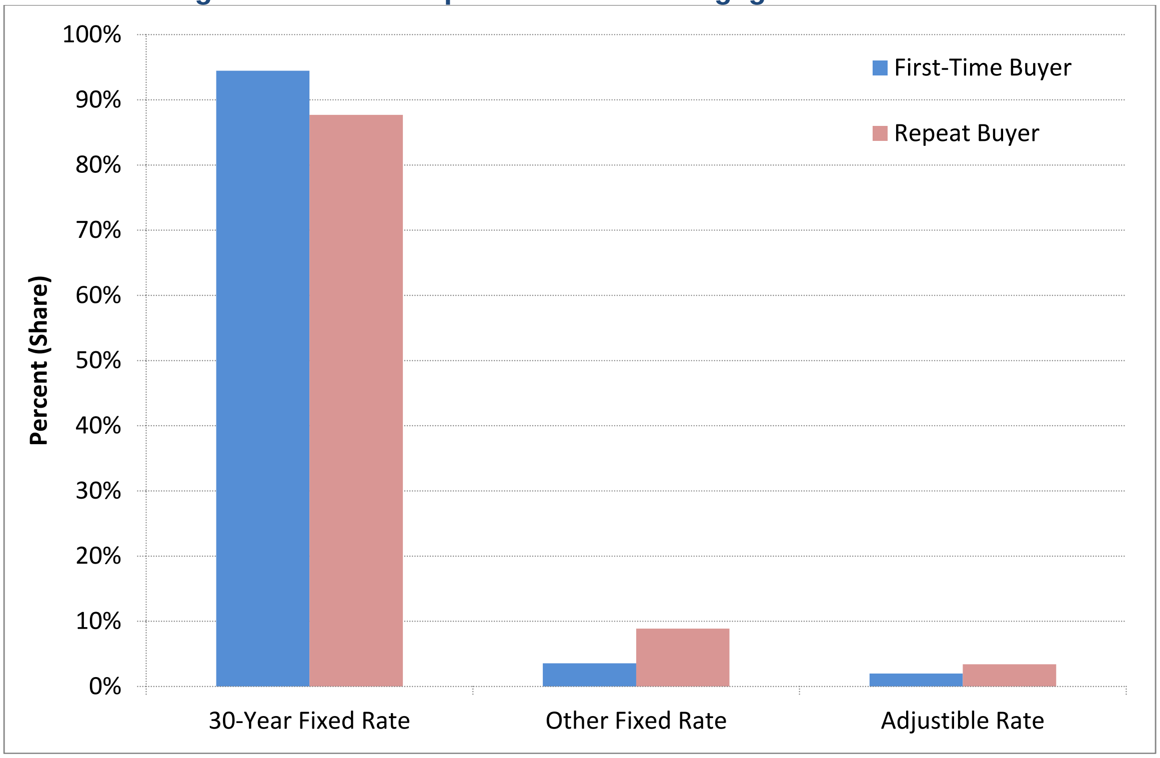
Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Loan Type: As shown in Exhibit 10, while 30-year fixed-rate mortgages represent the lion's share of mortgages for both first-time and repeat homebuyers, they are more preferred by first-time buyers. In 2009-2012, 94 percent of first-time homebuyers obtained 30-year fixed rate mortgages compared to 88 percent of repeat homebuyers. Four percent of first-time buyers obtained fixed-rate mortgages of shorter term compared to 9 percent of repeat buyers, and 2 percent of first-time buyers obtained adjustable rate mortgages compared to 3 percent of repeat buyers.

It should be noted that the very large percentage of 30-year fixed-rate mortgages in recent years contrasts somewhat with shares during the housing boom. For both first-time and repeat homebuyers, the 30-year fixed-rate share was substantially lower (by almost 20 percentage points) during the boom or 1996-1997.[39]

[39] Not shown in the exhibit. In 1996, 75 percent or first-time buyers and 71 percent of repeat buyers took out 30-year fixed-rate mortgages. In 2004, 75 percent of first-time buyers and 69 percent of repeat buyers did so.

Exhibit 10. Loan Type by Homebuyer Type, 2009-2012 Originations of Enterprise and FHA Mortgages

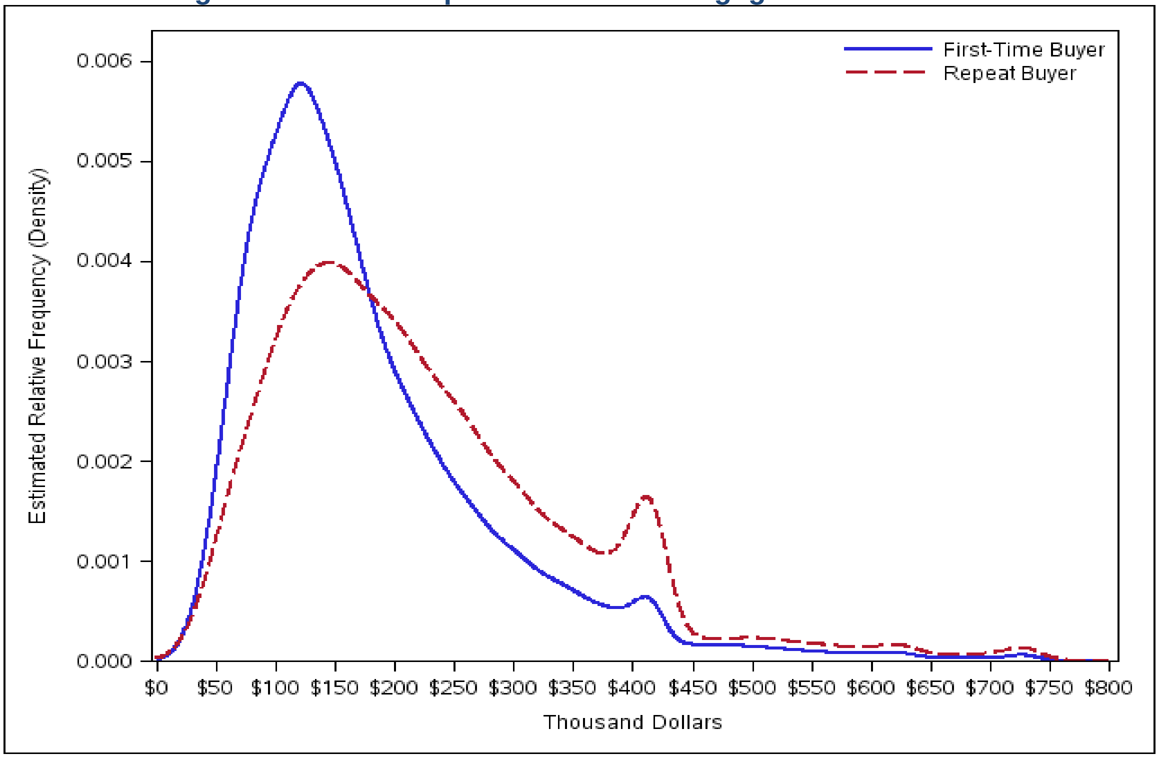


Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Loan Amount: Because first-time homebuyers purchase properties that cost less, they also take out smaller mortgage loans than repeat buyers. Exhibit 11A shows that the 2009-2012 distribution of loan amount for first-time buyers is narrower and longer with the median around $150,000 than the repeat buyers with the median about $198,000, a $48,000 difference. However, second, much smaller humps appear for the Enterprise homebuyers around $417,000, the conforming loan limit for one-unit properties.

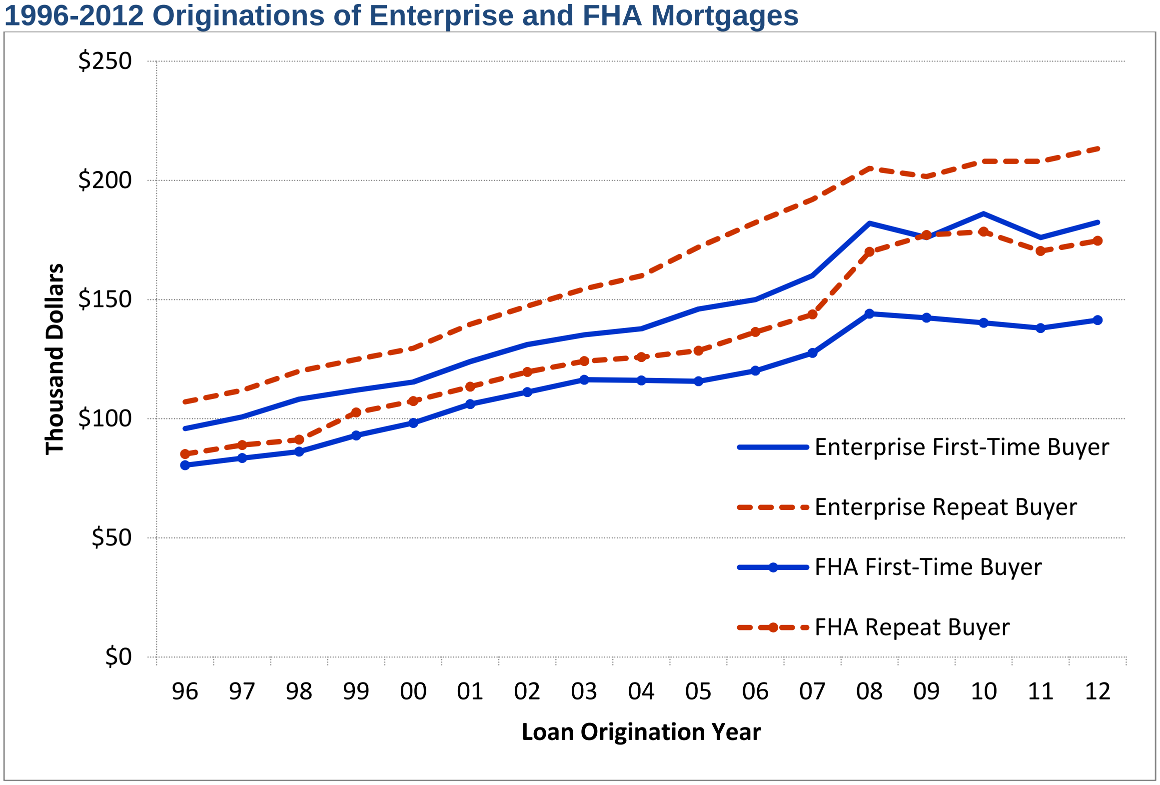
Like the median property values, the median loan amounts taken out by borrowers were fairly stable in 2009-2012 but steadily increased prior to that from 1996 to 2008 as shown in Exhibit 11B. The spread in the median loan amount of Enterprise first-time and repeat homebuyers more than doubled from about $11,000 in 1996 to over $28,000 in 2009-2012. By contrast, the spread in the median loan amount of FHA first-time and repeat homebuyers grew five times from nearly $5,000 in 1996 to roughly $35,000 in 2009-2012.

Exhibit 11A. Distributions of Loan Amount by Homebuyer Type, 2009-2012 Originations of Enterprise and FHA Mortgages



Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Exhibit 11B. Time-Series of Median Loan Amount by Homebuyer Type, 1996-2012 Originations of Enterprise and FHA Mortgages

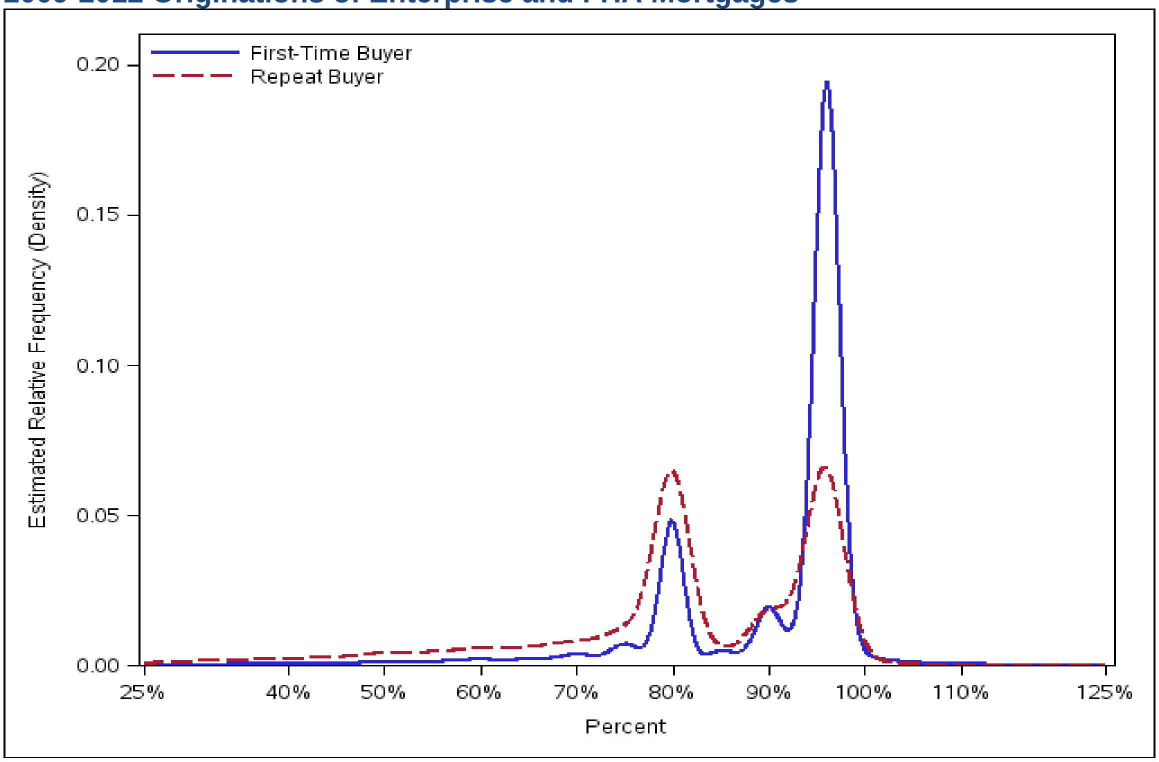


Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

***Loan-to-Value Ratio*:** Although first-time homebuyers purchase less expensive properties and take out smaller loans, they have higher loan-to-value ratios (LTV) than repeat homebuyers. Exhibit 12A shows the distributions of LTV for first-time and repeat homebuyer mortgages originated in 2009-2012. There are three humps: sizable humps at 80 percent and 97 percent and a much smaller hump at 90 percent. The hump at 97 percent is much larger for first-time than repeat buyers. The humps at 80 and 90 percent are driven by the Enterprise homebuyers and the 97 percent hump is driven by FHA homebuyers. The distributions shown in Exhibit 12 demonstrate that regardless of first-time status, Enterprise borrowers predominantly have 80 percent LTV and FHA borrowers predominantly have 97 percent LTV.

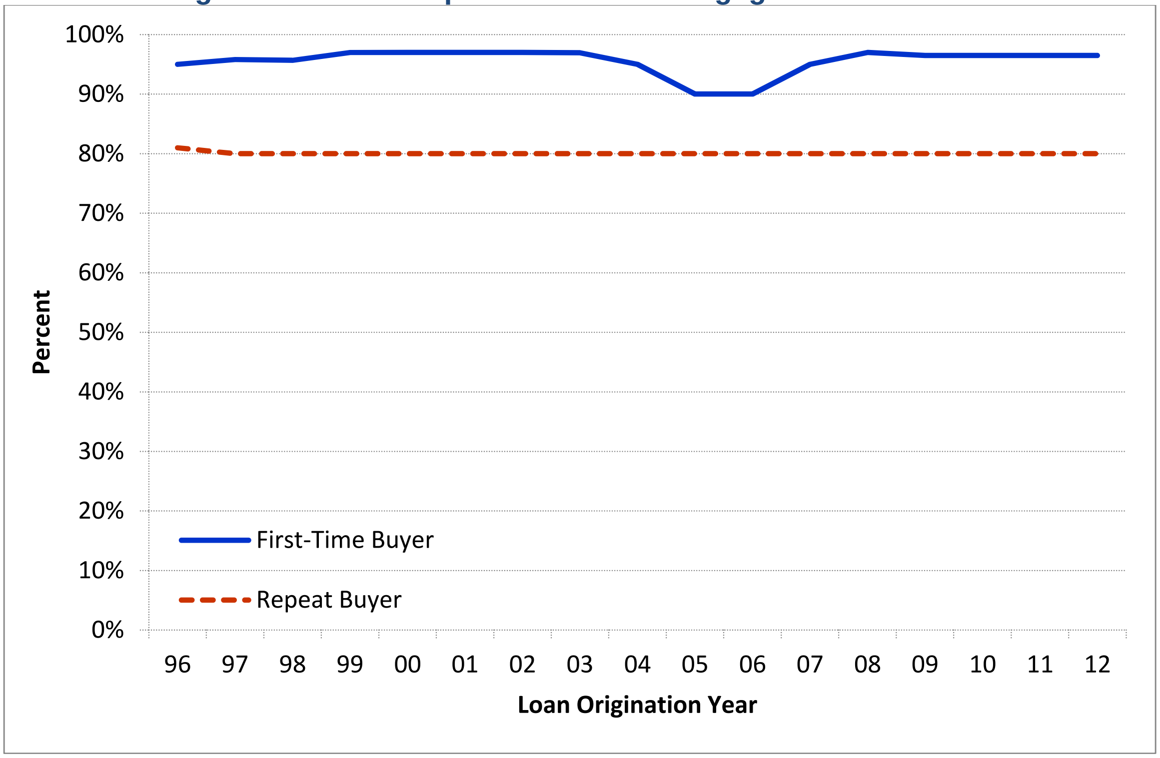
Exhibit 12B shows the median LTV of first-time and repeat homebuyers since 1996. As the FHA market share declined from 2001-2007, the median LTV of first-time homebuyers dropped from the usual 97 percent to nearly 90 percent in 2006. By contrast, the median LTV of repeat homebuyers stayed constant at 80 percent throughout.

Exhibit 12A. Distributions of Loan-to-Value Ratio by Homebuyer Type, 2009-2012 Originations of Enterprise and FHA Mortgages



Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Exhibit 12B. Time-Series of Median Loan-to-Value Ratio by Homebuyer Type, 1996-2012 Originations of Enterprise and FHA Mortgages



Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

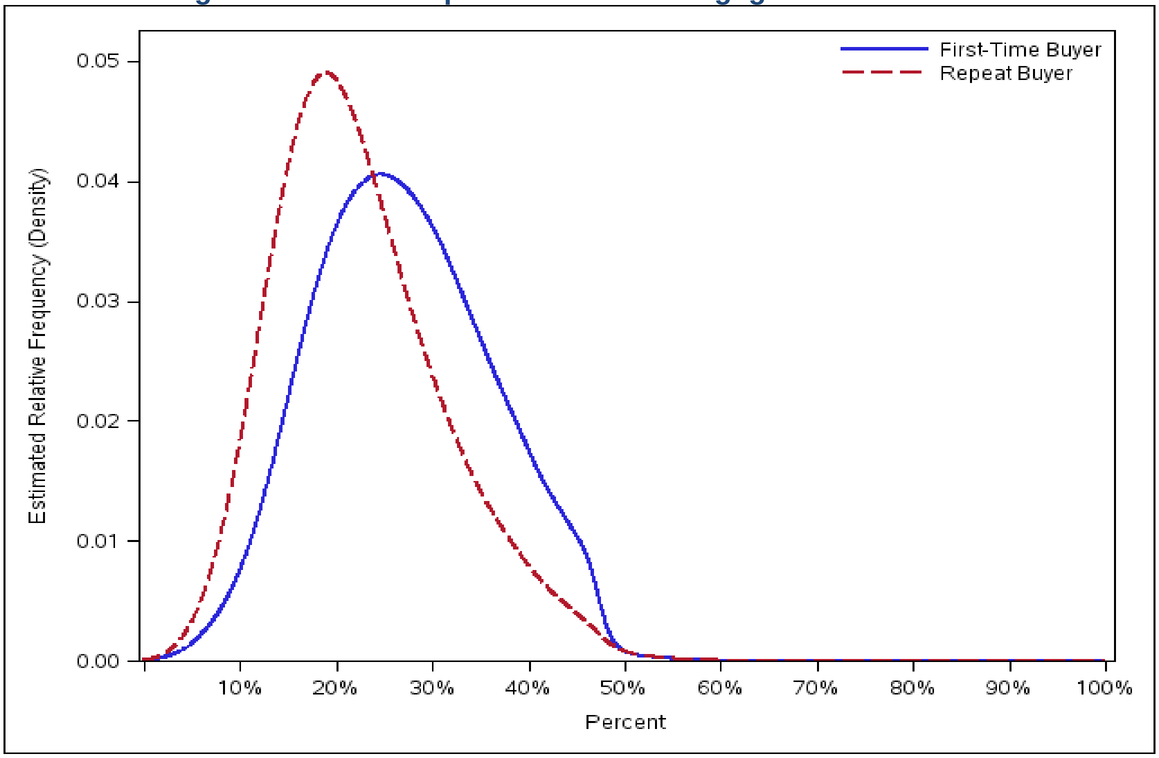
Debt-to-Income Ratios: Two different types of debt-to-income ratios (DTI) are commonly used to evaluate mortgage loans. "Front-end" DTI is the ratio of the monthly payments required for ownership of a property (mortgage, tax and insurance) and the monthly income of the borrowers. "Back-end" DTI is the ratio of the total monthly fixed payment obligations of the borrowers (payments for the property as well as other fixed obligations such as credit card payments) and their monthly income.

First-time homebuyers, with smaller loans and lower income, on balance have higher front-end DTI than repeat homebuyers. In Exhibit 13A, the distribution of front-end DTI for first-time homebuyers in 2009-2012 is to the right the distribution for repeat buyers. The first-time homebuyer front-end DTI distribution in the exhibit has an abrupt decline around 47.[40] As shown in Exhibit 13B, the median front-end DTI increased steadily from 1996 to 2007 and fell afterwards (except for FHA first-time homebuyers).[41] While the median front-end DTI of first-time homebuyers increased from 23 percent in 1996 to 27 percent in 2009-2012, that of the repeat homebuyers dropped slightly from nearly 22 percent in 1996 to 21 percent in 2009-2012, increasing the spread in median front-end DTI from 2 percentage points to 6 percentage points.

[40] This decline around 47 percent likely reflects FHA characteristics. While there is no maximum DTI limit, there are additional requirements for DTI above 43 percent. See http://archives.hud.gov/offices/hsg/sfh/ref/sfhp2-12.cfm and http://portal.hud.gov/huddoc/13-05ml.pdf.

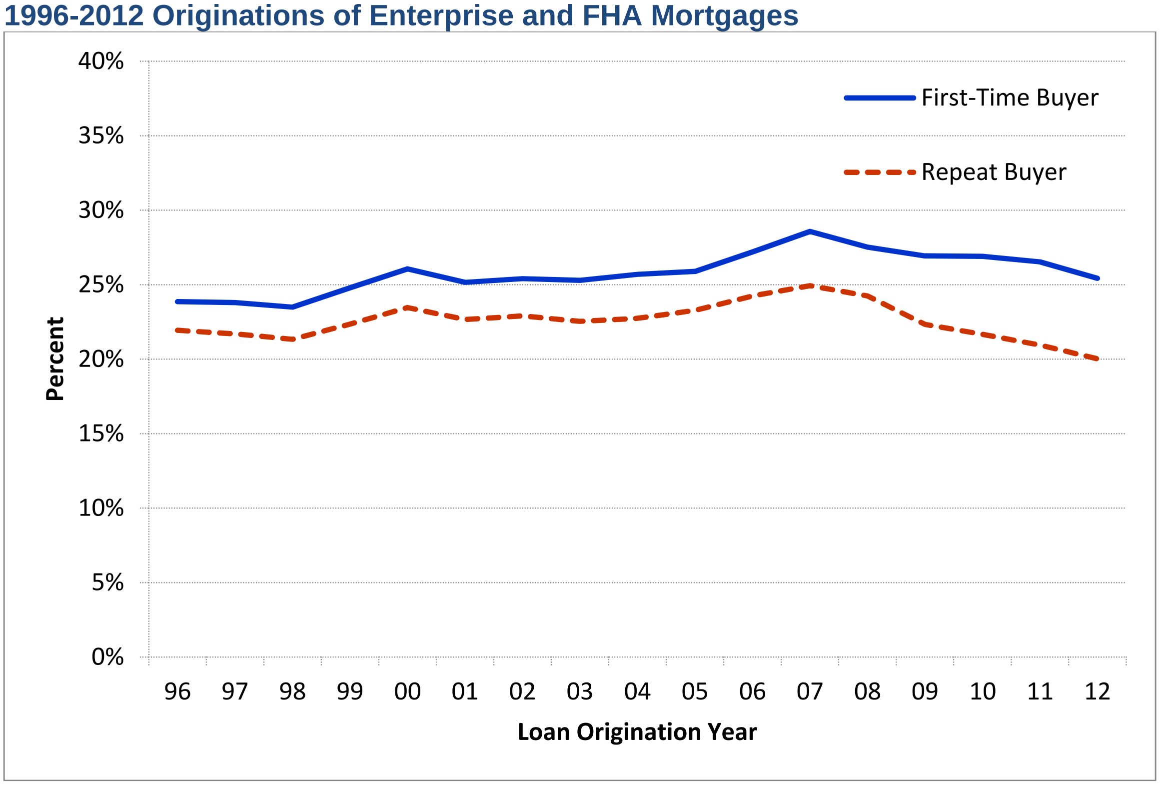
[41] Generally, the median front-end DTI of the Enterprise borrowers was slightly lower than that of the FHA borrowers. However, that was not the case for the first-time homebuyers in 2006 and 2007; in those years, the Enterprise first-time median was slightly higher than the FHA first-time median.

Exhibit 13A. Distributions of Front-End Debt-to-Income Ratio by Homebuyer Type, 2009-2012 Originations of Enterprise and FHA Mortgages



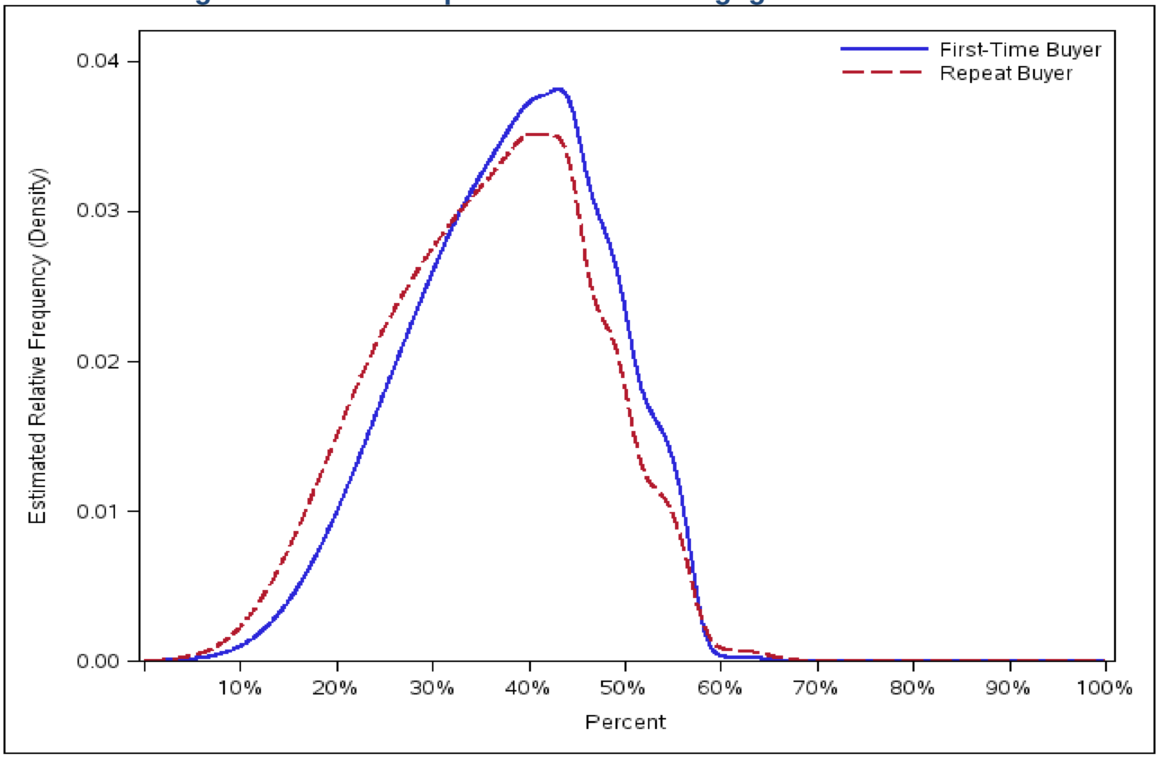
Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Exhibit 13B. Time-Series of Median Front-End Ratio by Homebuyer Type, 1996-2012 Originations of Enterprise and FHA Mortgages



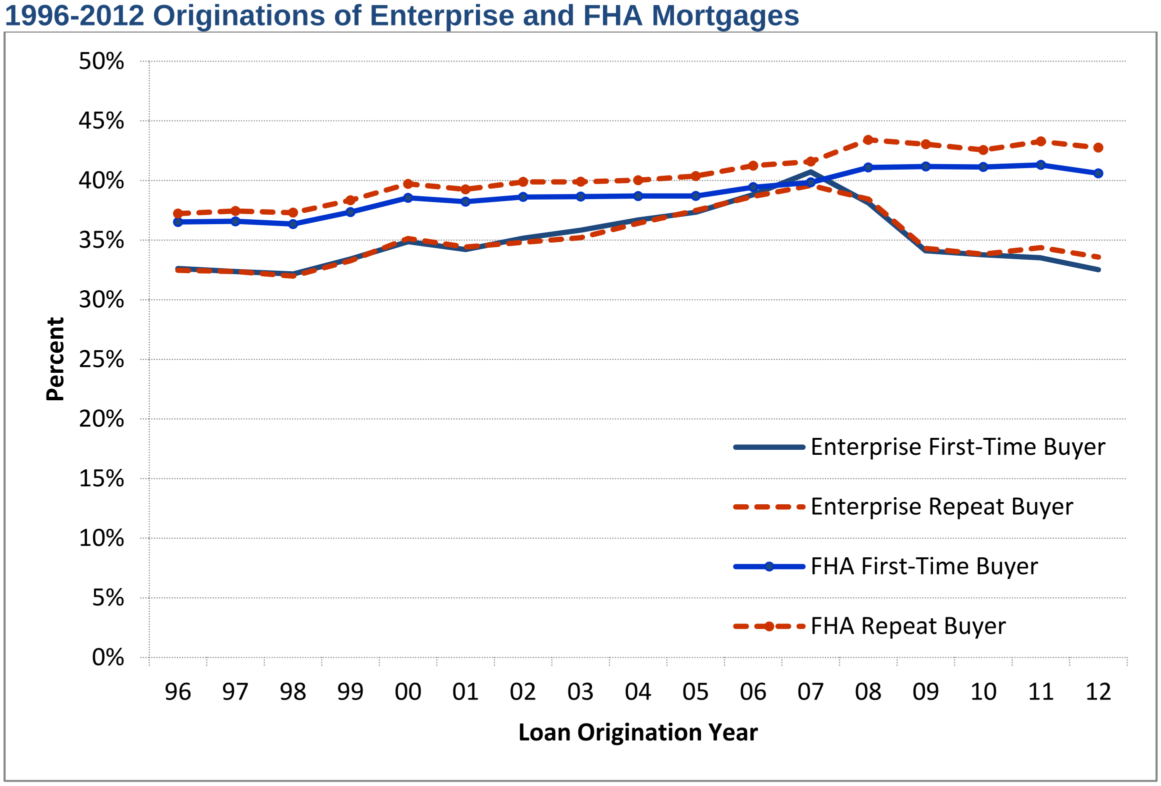
Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Exhibit 14A. Distributions of Back-End Debt-to-Income Ratio by Homebuyer Type, 2009-2012 Originations of Enterprise and FHA Mortgages



Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Exhibit 14B. Time-Series of Median Back-End Ratio by Homebuyer Type, 1996-2012 Originations of Enterprise and FHA Mortgages



Source: FHFA data of purchase loans for primary residences from Fannie Mae, Freddie Mac and FHA.

Although the front-end DTIs of first-time and repeat homebuyers are clearly different from one another, the difference in the back-end DTIs of the two groups is not as apparent. The overall distributions of back-end DTIs in 2009-2012, as shown in Exhibit 14A, mask interesting differences between the Enterprise and FHA borrowers. Exhibit 14 B presents the time-series of the first-time and repeat homebuyers' median back-end DTIs separately for the Enterprises and FHA. The exhibit shows that the Enterprise borrowers generally had lower median back-end DTI except for a brief period in the mid-2000s when the median back-end DTIs were fairly comparable. As for the first-time and repeat buyer difference, Exhibit 14B shows that the median back-end DTI of the Enterprise borrowers was essentially the same regardless of first-time buyer status but the median back-end DTI of FHA first-time homebuyers, curiously, was slightly lower than that of FHA repeat buyers.

Conclusion

In summary, national surveys have typically shown that the first-time homebuyer shares in the U.S. during the last 20 years were approximately 40 percent with a noticeable upward trend from 2007 to 2010 and a downward trend subsequently. Estimates of first-time homebuyer share using loan-level data from Fannie Mae, Freddie Mac and FHA are generally consistent with the survey estimates. However, it is difficult to fully reconcile the Enterprise and FHA estimates with other measures due to the expansive definition of first-time homebuyer used by the Enterprises and FHA and the recent surge of all-cash purchases not captured by mortgage data.

It should be noted that the consolidated Enterprise and FHA first-time homebuyer share does not necessarily need to be similar to the other estimates. It is conceivable that first-time homebuyer shares differ in other market segments. Furthermore, the NAR- and AHS-based first-time homebuyer shares are merely sample-based estimates that should be technically interpreted with appropriate confidence bands.

As discussed in the second section of this Note, a relatively small share of the Enterprises overall business activity has been devoted to guaranteeing purchase-money mortgages for first-time homebuyers. First-time homebuyers have traditionally been served by FHA loans and that has continued to be the case over the last several years. Moreover, much of the Enterprises' overall business activity involves guaranteeing refinance loans. The volume of refinance activity generally vastly exceeds the volume of purchase-money mortgage guarantees, let alone purchase-money mortgages for first-time homebuyers. In the latest year—one in which refinance activity was strong—only about one in twenty Enterprise mortgages was a purchase loan for a first-time homebuyer.

The final section of this Note presents a number of informative statistics comparing loan characteristics of first-time homebuyers and repeat homebuyers. In general, first-time homebuyers are younger and have lower incomes and credit scores than repeat homebuyers. Therefore they usually purchase properties that cost less than properties purchased by repeat homebuyers and take out smaller loans as well. While they somewhat prefer single-family detached homes and 30-year fixed-term mortgages, loans obtained by first-time homebuyers have somewhat higher loan-to-value and debt-to-income ratios than loans obtained by repeat homebuyers.

To end, additional comparisons of first-time homebuyers to other homebuyers—including buyers of second and investment homes and homeowners who refinanced their mortgages—are presented in the tables and exhibits of the Appendix to this Note.

Mortgage Market Note

A Study of First-Time Homebuyers

October 28, 2013

APPENDIX TO MORTGAGE MARKET NOTE 13-01

The following pages contain the Appendix Tables and Exhibits to the Mortgage Market Note 13-01 called "A Study of First-Time Homebuyers".

Appendix Table 1 presents the first-time homebuyer shares during 1993-2012 using statistics from the National Association of Realtors' (NAR) Survey and the American Housing Survey (AHS), and the loan-level mortgage data from the Enterprises and FHA.

Appendix Table 2 shows the first-time homebuyer share of the loans acquired by the Enterprises from 1993 to 2012 using the Enterprise mortgage data.

Appendix Tables 3A, 3B and 3C presents comparisons of 1) first-time homebuyers to 2) repeat homebuyers, 3) buyers or second and investment properties, and 3) borrowers who refinance their mortgages for the 2009-2012 period.

Appendix Exhibits 4A through 4I show the distributional comparisons of first-time homebuyer characteristics to repeat homebuyer characteristics during the 2009-2012 period.

Lastly, Appendix Exhibits 5A through 5I present the time-series comparisons of first-time homebuyer characteristics to repeat homebuyer characteristics from 1996-2012.

Appendix Table 1. First-Time Homebuyer Shares by Survey and Entity

Survey Year or Loan Origination Year	Survey			Entity		
	NAR - Recent Buyers	AHS - All Homeowners	AHS - Recent Buyers	Enterprises	FHA	Consolidated Enterprises & FHA
1993	-	44%	38%	30%	66%	40%
1994	-	-	38%	32%	68%	43%
1995	-	44%	41%	33%	70%	44%
1996	-	-	42%	33%	75%	46%
1997	-	45%	40%	31%	80%	48%
1998	-	-	41%	28%	81%	44%
1999	-	44%	42%	27%	81%	44%
2000	-	-	-	27%	81%	44%
2001	42%	44%	39%	25%	79%	41%
2002	-	-	-	26%	80%	40%
2003	40%	44%	39%	26%	78%	37%
2004	40%	-	-	31%	78%	40%
2005	40%	43%	35%	32%	80%	38%
2006	36%	-	-	36%	79%	41%
2007	39%	41%	35%	42%	80%	47%
2008	41%	-	-	39%	77%	54%
2009	47%	42%	41%	41%	80%	63%
2010	50%	-	-	42%	76%	61%
2011	37%	43%	46%	38%	76%	57%
2012	39%	-	-	38%	78%	57%

Source: FHFA loan-level data of purchase loans from Fannie Mae, Freddie Mac and FHA for primary residences. National Association of Realtors' (NAR) Survey of Home Buyers and Sellers and American Housing Survey (AHS) as reported by U.S. Census Bureau, U.S. Department of Housing and Urban Development and National Association of Home Builders.

Appendix Table 2. First-Time Homebuyer Shares of Loan Acquisition for the Enterprises

Loan Acquisition Year	Loan Balance		Loan Counts	
	Of Purchase Loans	Of All Loans	Of Purchase Loans	Of All Loans
1993	28%	9%	30%	8%
1994	30%	14%	28%	12%
1995	31%	19%	32%	20%
1996	31%	18%	33%	18%
1997	30%	18%	32%	18%
1998	27%	10%	28%	10%
1999	24%	10%	26%	11%
2000	25%	17%	27%	17%
2001	25%	8%	27%	9%
2002	24%	6%	26%	6%
2003	23%	4%	25%	4%
2004	29%	10%	31%	11%
2005	30%	12%	32%	12%
2006	32%	14%	35%	15%
2007	38%	16%	41%	17%
2008	36%	13%	39%	13%
2009	38%	7%	40%	7%
2010	39%	7%	41%	7%
2011	36%	7%	39%	7%
2012	36%	6%	38%	6%

Source: FHFA loan-level data of purchase loans from Fannie Mae and Freddie Mac.

Appendix Table 3A. Comparison of Homebuyers, 2009-2012 Enterprise and FHA Originations

Characteristics	Statistic	First-Time Homebuyers	Repeat Homebuyers	Second & Investment Homebuyers	Refinancing Homeowners*
Borrower Age	Median	32	42	52	48
	Average	35	44	52	49
Borrower Monthly Income	Median	$4,615	$7,192	$9,641	$7,364
	Average	$5,549	$8,268	$10,951	$8,491
Borrower Credit Score	Median	710	761	775	768
	Average	710	747	764	754
Property Type					
Detached	Percent	68%	63%	58%	77%
PUD	Percent	23%	30%	26%	17%
Condominium	Percent	8%	6%	15%	5%
Property Value	Median	$163,900	$240,000	$178,000	$275,000
	Average	$203,061	$289,776	$230,295	$341,029
Loan Type					
30-Year Fixed	Percent	94%	88%	82%	61%
Other Fixed	Percent	4%	9%	14%	36%
Adjustable	Percent	2%	3%	4%	3%
Loan Amount	Median	$149,575	$198,000	$132,000	$184,275
	Average	$177,806	$223,839	$164,405	$211,189
LTV	Median	96%	80%	76%	73%
	Average	91%	81%	75%	70%
Front-End DTI	Median	27%	21%	14%	21%
	Average	27%	22%	15%	23%
Back-End DTI	Median	39%	37%	34%	31%
	Average	38%	36%	33%	32%
Loan Rate	Median	4.8%	4.6%	4.9%	4.5%
	Average	4.7%	4.5%	4.7%	4.4%

Source: FHFA loan-level data from Fannie Mae, Freddie Mac and FHA. * Income, credit score, property value, LTV and DTI are missing for many FHA refinances.

Appendix Table 3B. Comparison of Homebuyers, 2009-2012 Enterprise Originations

Characteristics	Statistic	First-Time Homebuyers	Repeat Homebuyers	Second & Investment Homebuyers	Refinancing Homeowners
Borrower Age	Median	34	44	52	49
	Average	37	46	52	50
Borrower Monthly Income	Median	$5,680	$7,750	$9,641	$7,589
	Average	$6,773	$8,844	$10,951	$8,733
Borrower Credit Score	Median	757	772	775	771
	Average	749	761	764	759
Property Type					
Detached	Percent	61%	61%	58%	75%
PUD	Percent	22%	31%	26%	18%
Condominium	Percent	16%	8%	15%	6%
Property Value	Median	$225,000	$273,550	$178,000	$285,850
	Average	$274,228	$322,663	$230,295	$351,728
Loan Type					
30-Year Fixed	Percent	89%	84%	82%	58%
Other Fixed	Percent	9%	12%	14%	39%
Adjustable	Percent	3%	4%	4%	3%
Loan Amount	Median	$180,000	$208,000	$132,000	$187,757
	Average	$211,479	$234,653	$164,405	$214,262
LTV	Median	80%	80%	76%	69%
	Average	80%	76%	75%	67%
Front-End DTI	Median	25%	21%	14%	21%
	Average	26%	22%	15%	23%
Back-End DTI	Median	33%	34%	34%	31%
	Average	33%	33%	33%	32%
Loan Rate	Median	4.8%	4.5%	4.9%	4.4%
	Average	4.6%	4.5%	4.7%	4.4%

Source: FHFA loan-level data from Fannie Mae and Freddie Mac.

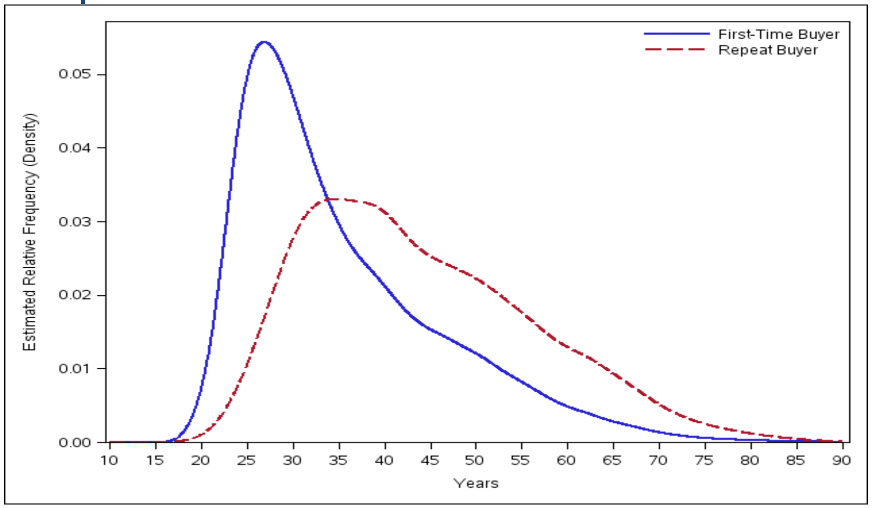
Appendix Table 3C. Comparison of Homebuyers, 2009-2012 FHA Originations

Characteristics	Statistic	First-Time Homebuyers	Repeat Homebuyers	Refinancing Homeowners*
Borrower Age	Median Average	31 35	38 41	42 43
Borrower Monthly Income	Median Average	$4,260 $4,973	$6,131 $6,837	$5,446 $6,072
Borrower Credit Score	Median Average	685 692	710 712	690 695
Property Type Detached PUD Condominium	 Percent Percent Percent	 71% 23% 5%	 67% 29% 3%	 89% 11% 2%
Property Value	Median Average	$147,000 $169,430	$184,000 $206,857	$177,500 $206,968
Loan Type 30-Year Fixed Other Fixed Adjustable	 Percent Percent Percent	 97% 1% 2%	 96% 2% 2%	 82% 15% 3%
Loan Amount	Median Average	$140,364 $161,891	$175,000 $196,557	$168,300 $190,479
LTV	Median Average	96% 96%	96% 95%	93% 90%
Front-End DTI	Median Average	27% 28%	23% 24%	24% 25%
Back-End DTI	Median Average	41% 40%	43% 42%	39% 38%
Loan Rate	Median Average	4.9% 4.7%	4.8% 4.6%	4.8% 4.6%

Source: FHFA loan-level data from FHA. * Income, credit score, property value, LTV and DTI are missing for many FHA refinances.

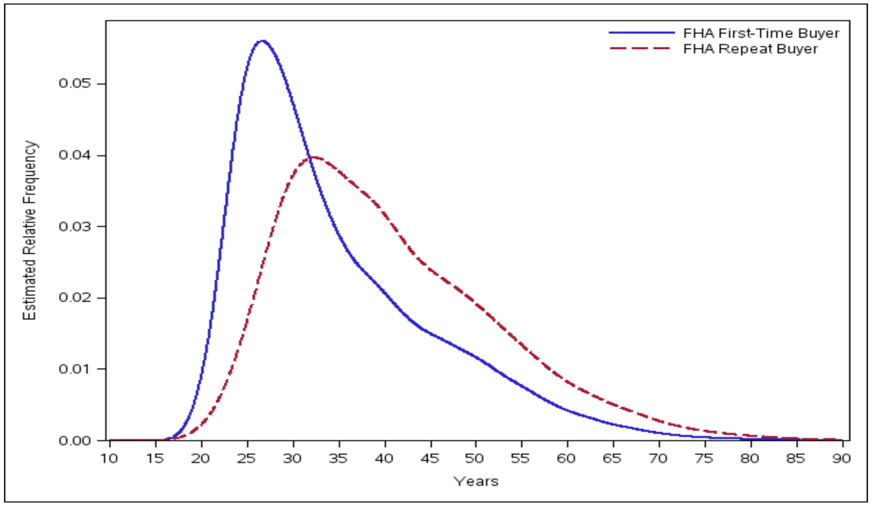
Appendix Exhibit 4A. Distribution of Borrower Age by Entity and Homebuyer Type, 2009-2012 Originations

Enterprises and FHA



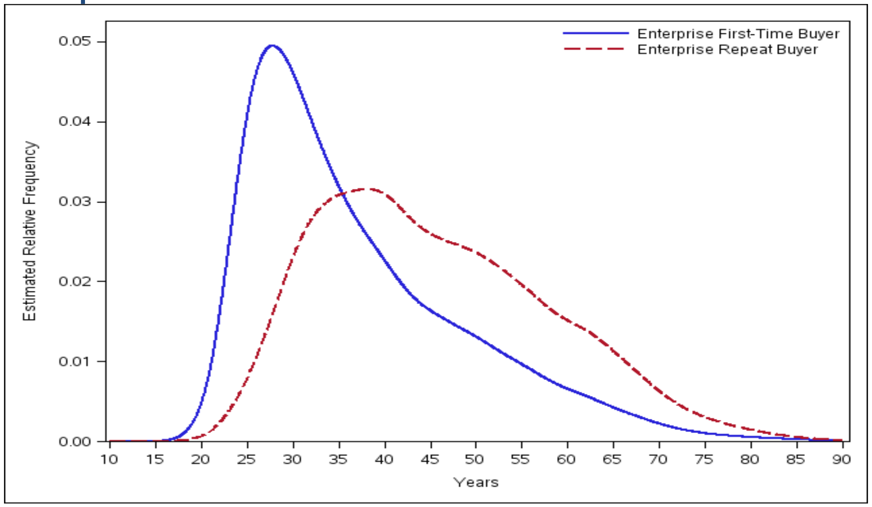
Source: FHFA

FHA



Source: FHFA

Enterprises



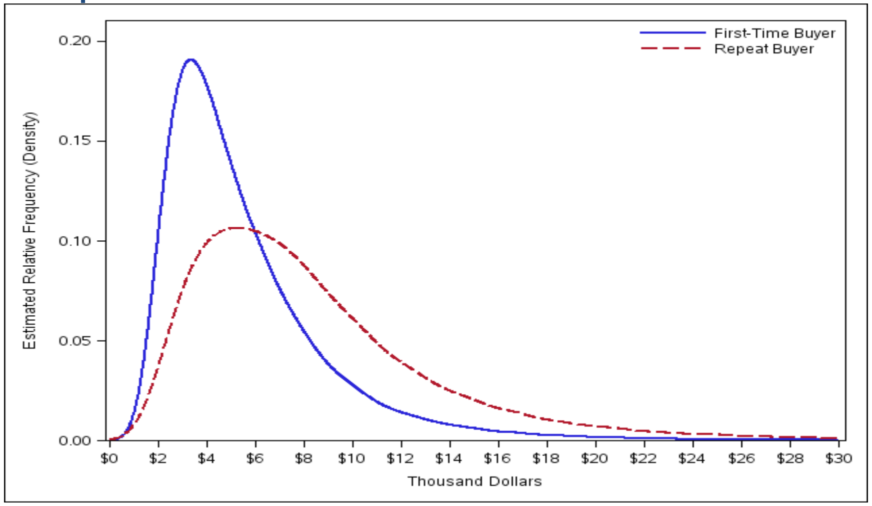
Source: FHFA

Notes:

1. Produced using loan-level data of purchase loans from Fannie Mae, Freddie Mac and FHA for primary residences. Borrower age is the age of the borrower, not the co-borrower.
2. Borrower age greater than 98 years was turned to missing for all analyses.
3. Borrower age is missing for 12 percent of first-time and repeat homebuyers, 16 percent of second/investment homebuyers and 15 percent of refinancing homeowners.
4. Borrower Age is missing for 6 percent of FHA refinancing borrowers.

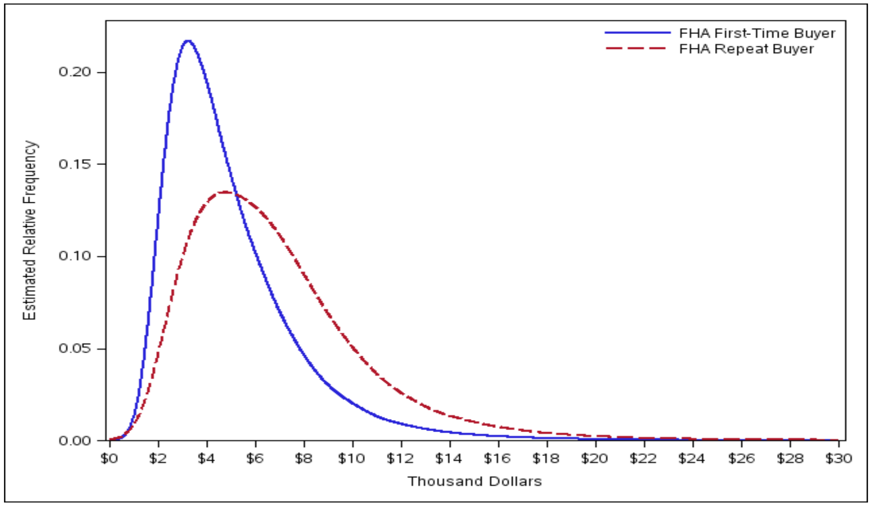
Appendix Exhibit 4B. Distribution of Borrower Monthly Income by Entity and Homebuyer Type, 2009-2012 Originations

Enterprises and FHA



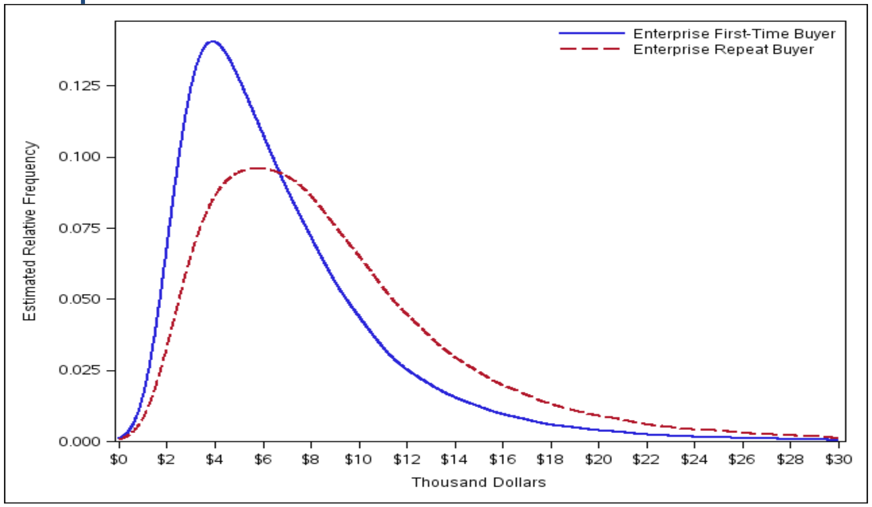
Source: FHFA

FHA



Source: FHFA

Enterprises



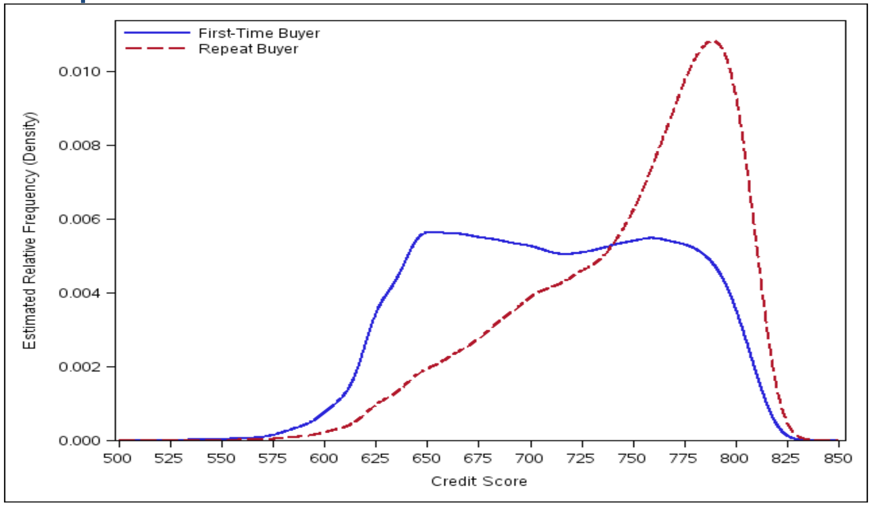
Source: FHFA

Notes:

1. Produced using loan-level data of purchase loans from Fannie Mae, Freddie Mac and FHA for primary residences.
2. Monthly income greater than $30,000 was turned to missing for all analyses.
3. Income is missing for 8 percent of Enterprise second/investment homebuyers.
4. Income is missing for 68 percent of FHA refinances because not all information is collected for streamlined refinances.

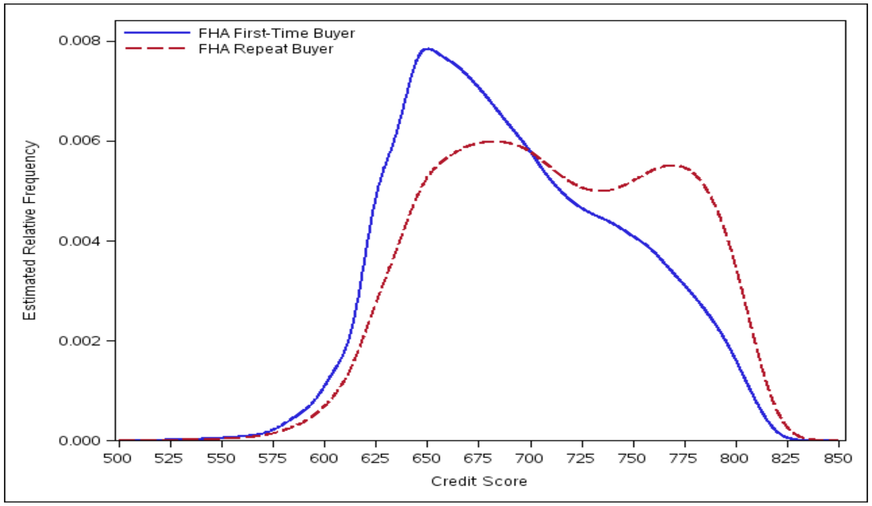
Appendix Exhibit 4C. Distribution of Borrower Credit Score by Entity and Homebuyer Type, 2009-2012 Originations

Enterprises and FHA



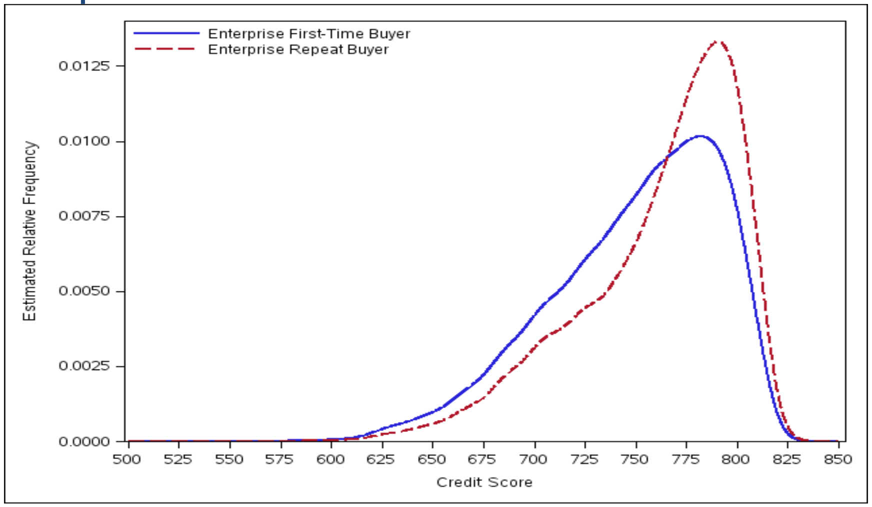
Source: FHFA

FHA



Source: FHFA

Enterprises



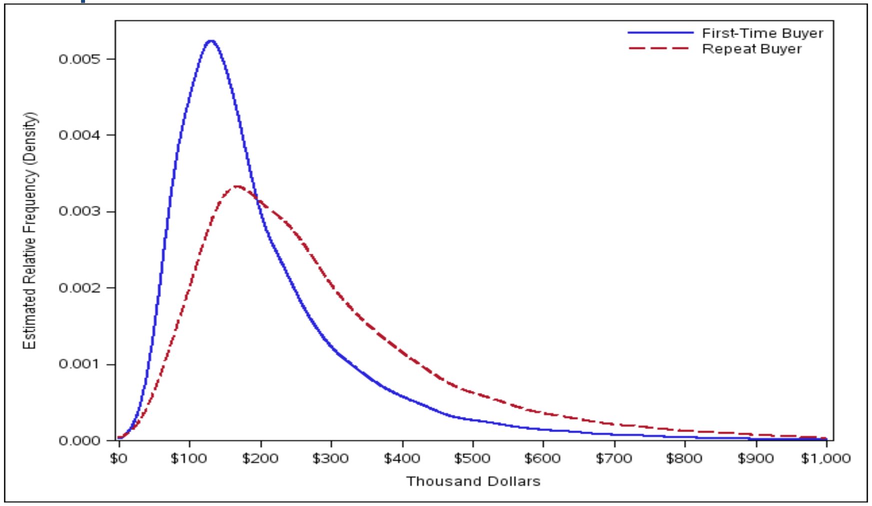
Source: FHFA

Notes:

1. Produced using loan-level data of purchase loans from Fannie Mae, Freddie Mac and FHA for primary residences. Credit scores for Fannie Mae and Freddie Mac were calculated using actual borrower and co-borrower credit scores from the three credit agencies to approximate the credit scores used for the underwriting decision and the credit scores for FHA were the actual ones used for the underwriting decision.
2. Credit score less than 300 and greater than 850 was turned to missing for all analyses.
3. Credit score is missing for 9-10 percent of first-time and repeat homebuyers, 5 percent of second/investment homebuyers and 7 percent of refinancing homeowners.
4. Credit score is not available for FHA borrowers prior to 2005. Credit score is missing for 36 percent for FHA refinances in 2005-2012 because not all information is collected for streamlined refinances.

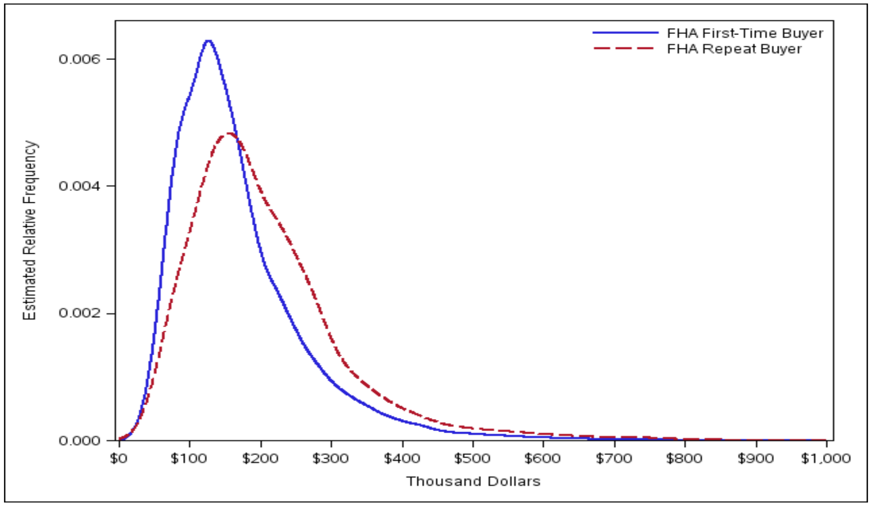
Appendix Exhibit 4D. Distribution of Property Value by Entity and Homebuyer Type, 2009-2012 Originations

Enterprises and FHA



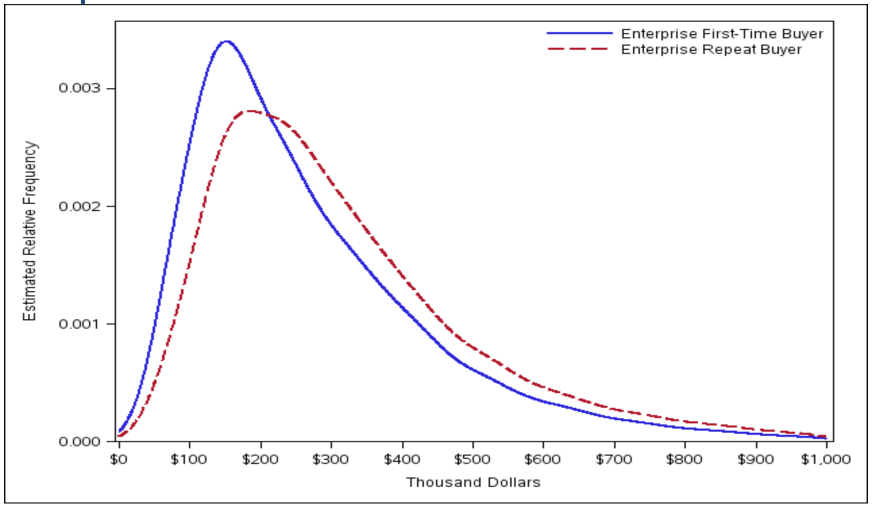
Source: FHFA

FHA



Source: FHFA

Enterprises



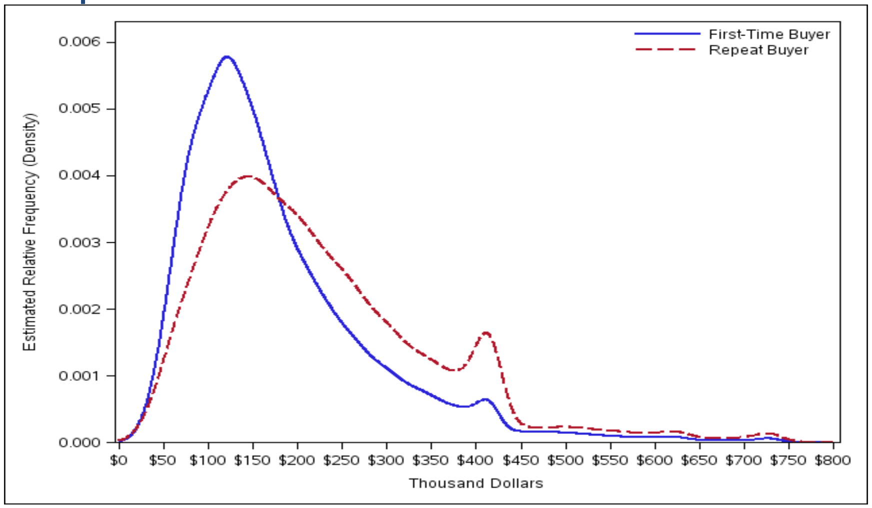
Source: FHFA

Notes:

1. Produced using loan-level data of purchase loans from Fannie Mae, Freddie Mac and FHA for primary residences. Property value is calculated as the minimum of the sales price and the appraised value.
2. Property value greater than $2 million was turned to missing for all analyses.
3. Property value is missing for 48 percent of FHA refinances because not all information is collected for streamlined refinances.

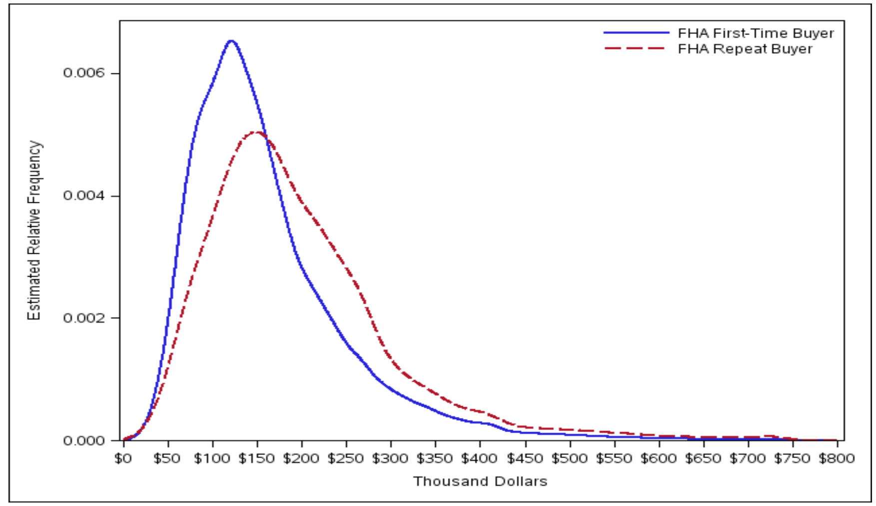
Appendix Exhibit 4E. Distribution of Loan Amount by Entity and Homebuyer Type, 2009-2012 Originations

Enterprises and FHA



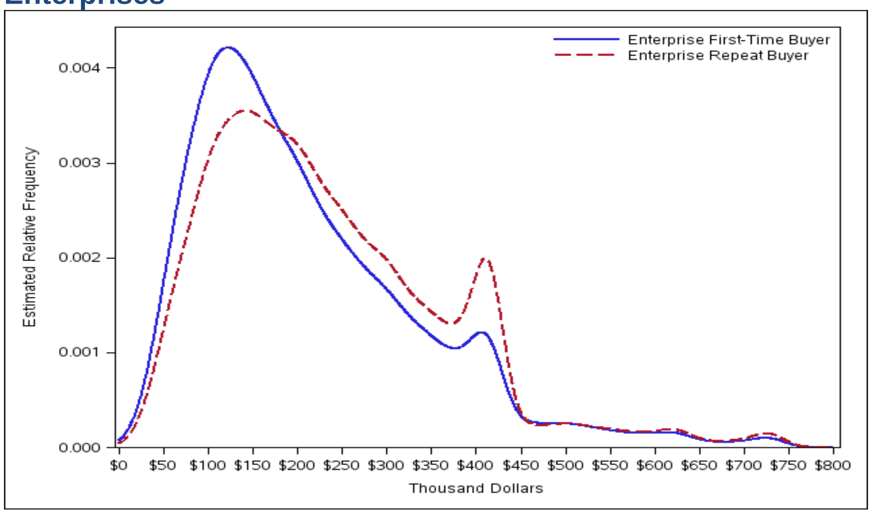
Source: FHFA

FHA



Source: FHFA

Enterprises



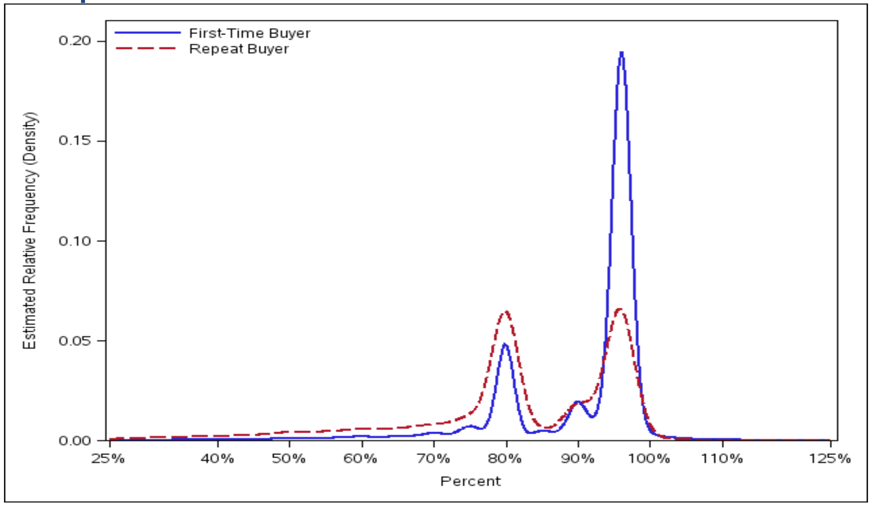
Source: FHFA

Notes:

1. Produced using loan-level data of purchase loans from Fannie Mae, Freddie Mac and FHA for primary residences.
2. Loan amount greater than $1.5 million was turned to missing for all analyses.

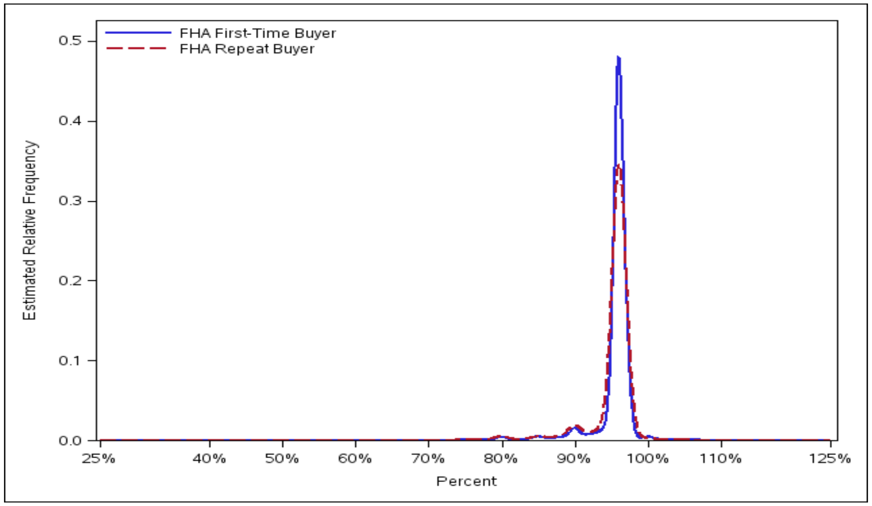
Appendix Exhibit 4F. Distribution of Loan-to-Value Ratio by Entity and Homebuyer Type, 2009-2012 Originations

Enterprises and FHA



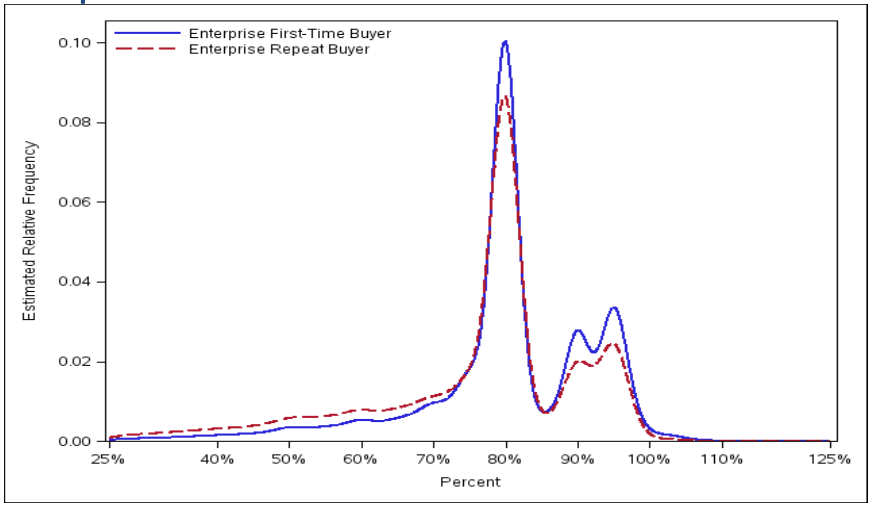
Source: FHFA

FHA



Source: FHFA

Enterprises



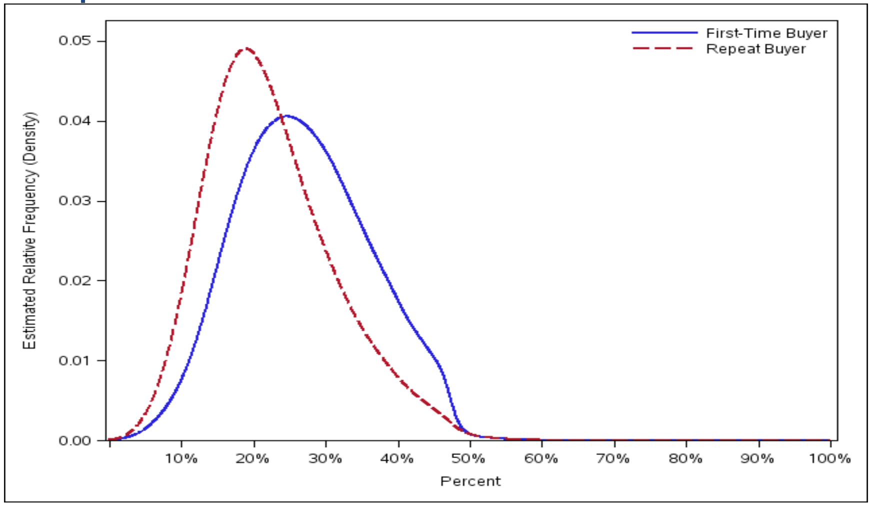
Source: FHFA

Notes:

1. Produced using loan-level data of purchase loans from Fannie Mae, Freddie Mac and FHA for primary residences.
2. LTV greater than 150 percent was turned to missing for all analyses.
3. LTV is missing for 18 percent of FHA refinances.

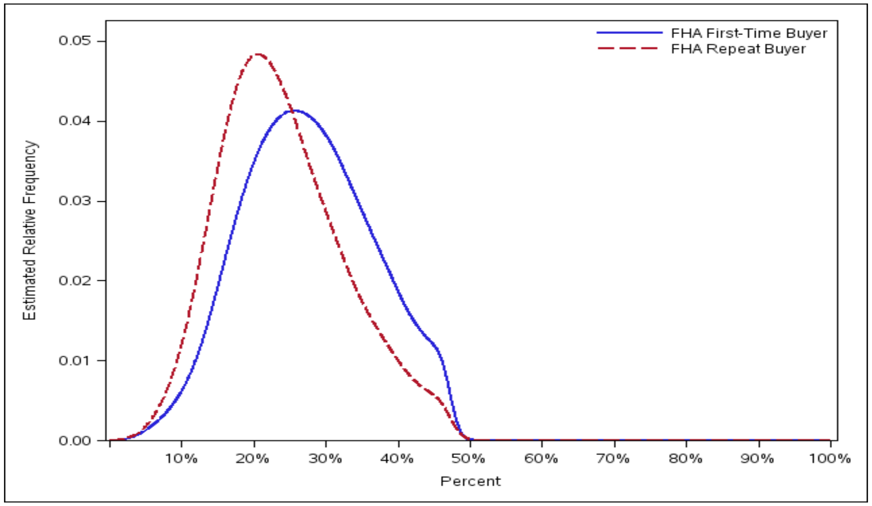
Appendix Exhibit 4G. Distribution Front-End Debt-to-Income Ratio of by Entity and Homebuyer Type, 2009-2012 Originations

Enterprises and FHA



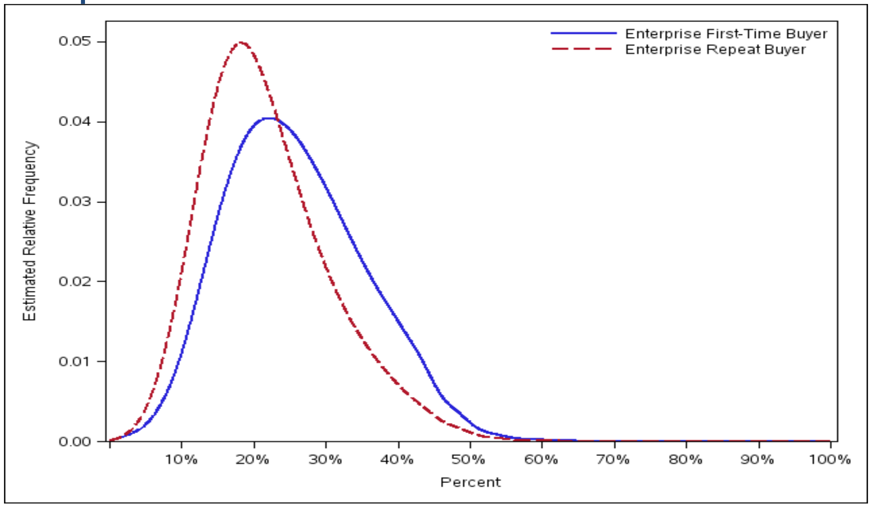
Source: FHFA

FHA



Source: FHFA

Enterprises



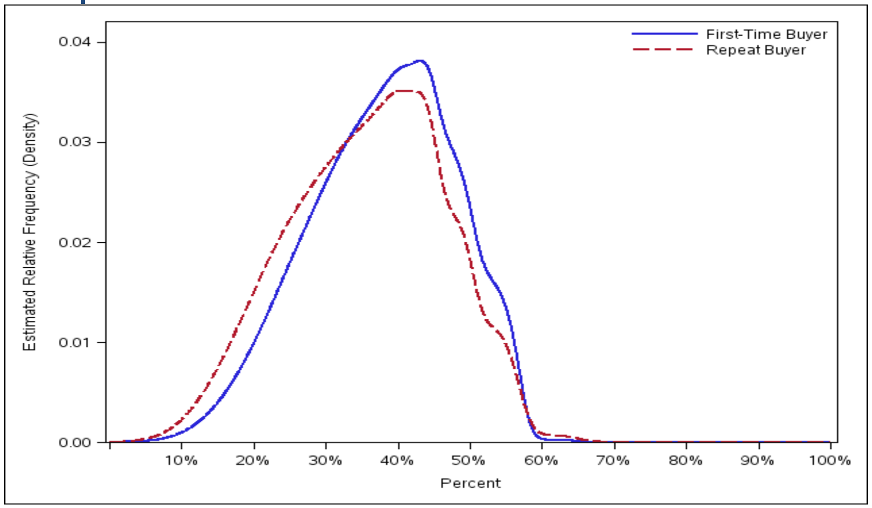
Source: FHFA

Notes:

1. Produced using loan-level data of purchase loans from Fannie Mae, Freddie Mac and FHA for primary residences.
2. Front-end DTI greater than 100 percent was turned to missing for all analyses.
3. Front-end DTI is missing for 7 percent of Enterprise second/investment homebuyers and 4 percent of refinancing borrowers.
4. Front-end DTI is missing for 49 percent of FHA refinances because not all information is collected for streamlined refinances.

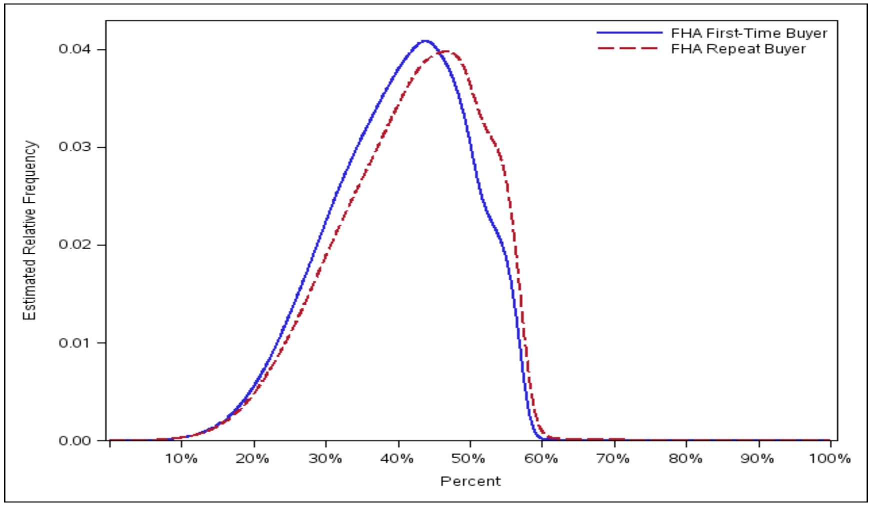
Appendix Exhibit 4H. Distribution of Back-End Debt-to-Income Ratio by Entity and Homebuyer Type, 2009-2012 Originations

Enterprises and FHA



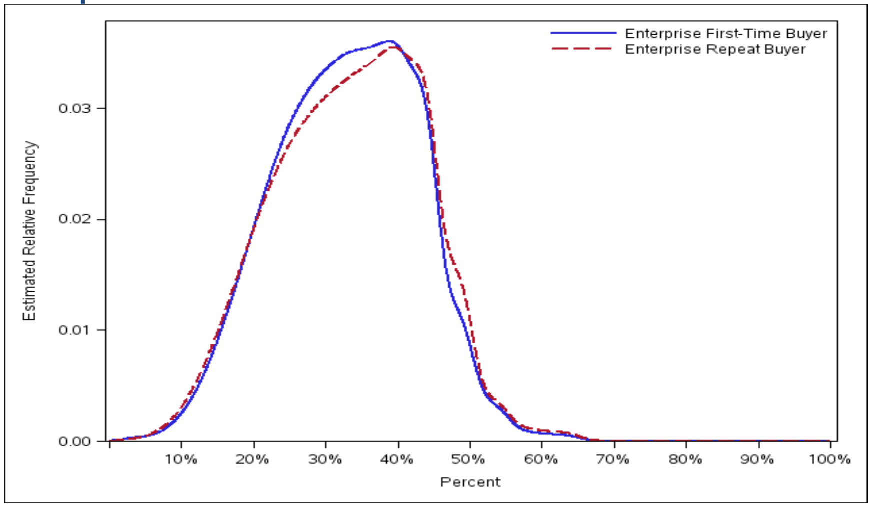
Source: FHFA

FHA



Source: FHFA

Enterprises



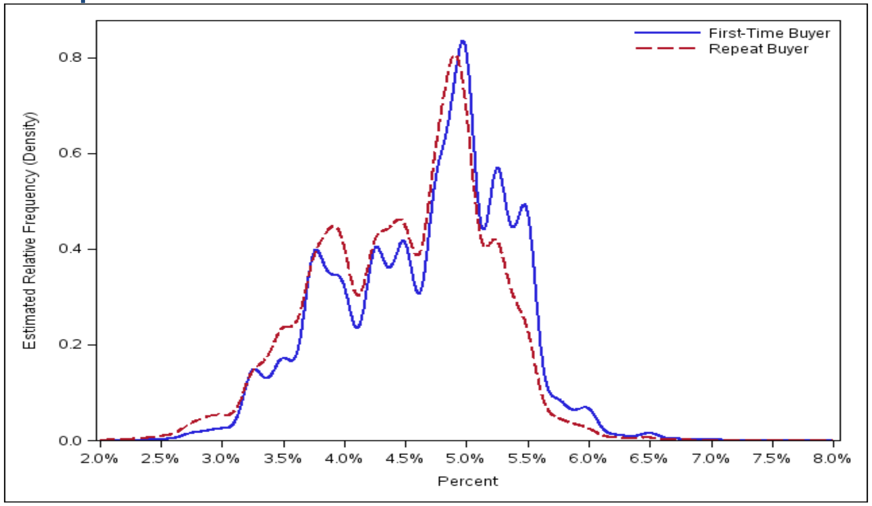
Source: FHFA

Notes:

1. Produced using loan-level data of purchase loans from Fannie Mae, Freddie Mac and FHA for primary residences.
2. Back-end DTI greater than 100 percent was turned to missing for all analyses.
3. Back-end DTI is missing for 6 percent of Enterprise second/investment homebuyers and 4 percent of refinancing borrowers.
4. Back-end DTI is missing for 53 percent of FHA refinances because not all information is collected for streamlined refinances.

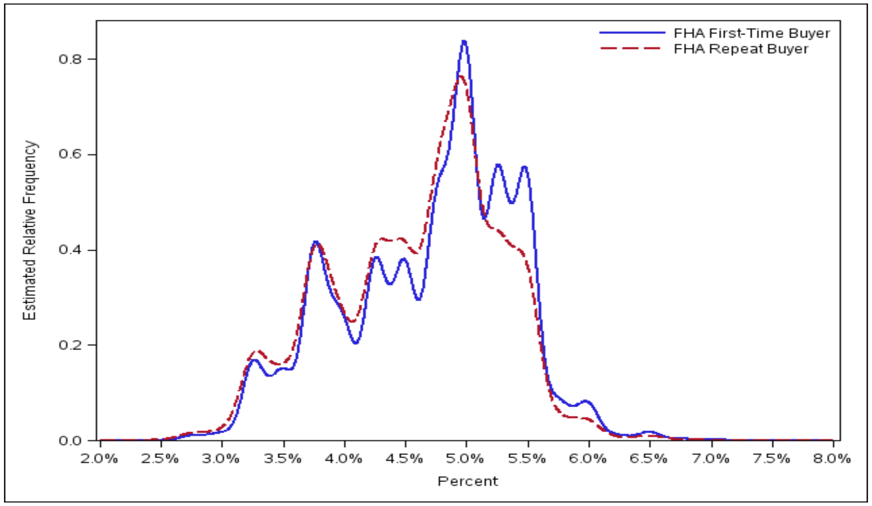
Appendix Exhibit 4I. Distribution of Loan Rate by Entity and Homebuyer Type, 2009-2012 Originations

Enterprises and FHA



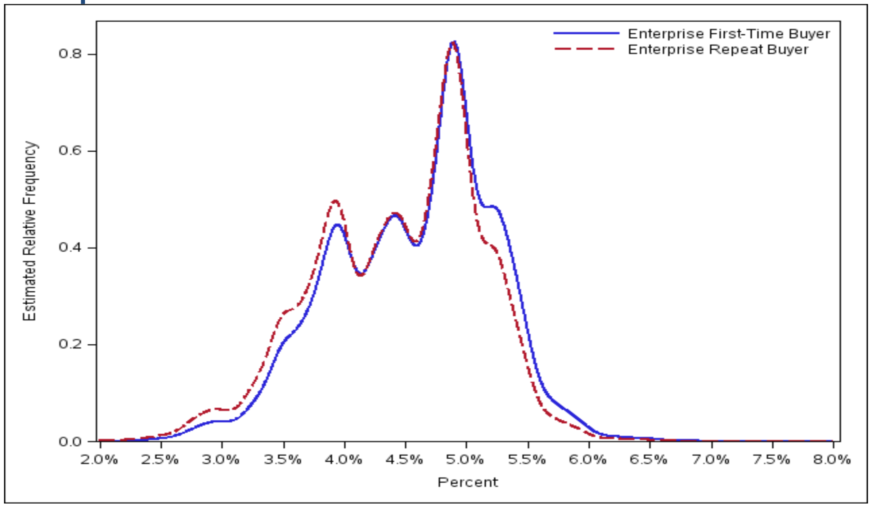
Source: FHFA

FHA



Source: FHFA

Enterprises



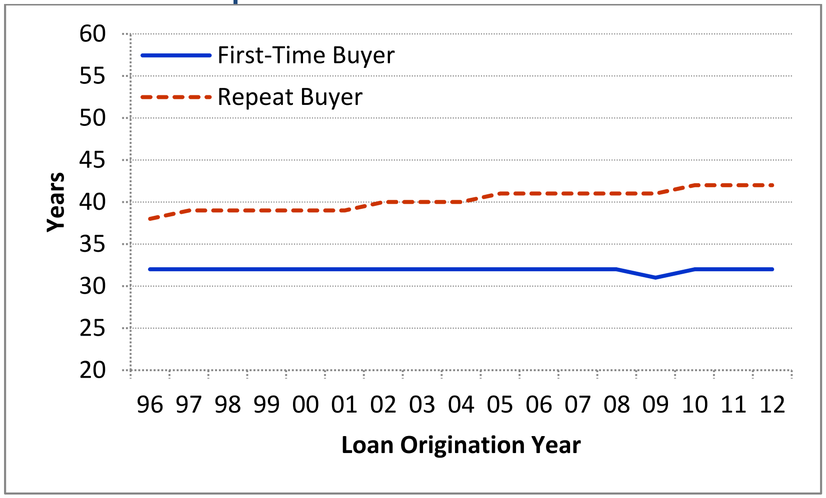
Source: FHFA

Notes:

1. Produced using loan-level data of purchase loans from Fannie Mae, Freddie Mac and FHA for primary residences.
2. Loan rate greater than 20 percent was turned to missing for all analyses.

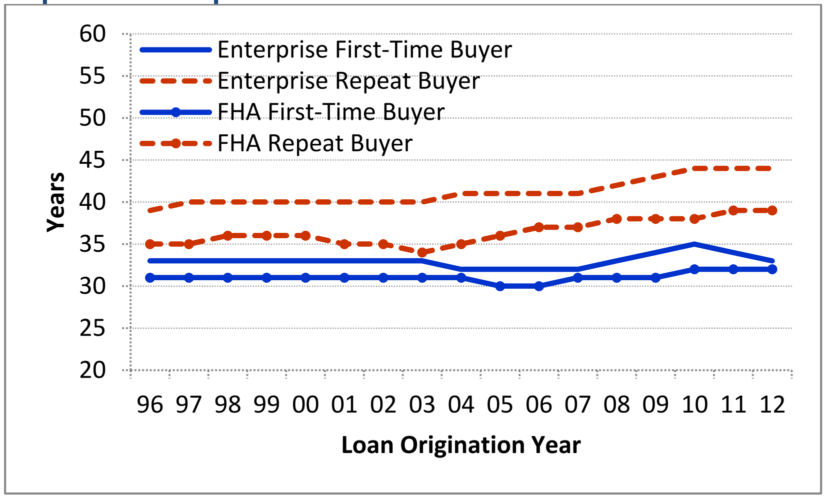
Appendix Exhibit 5A. Time-Series of Borrower Age by Entity and Homebuyer Type, 1996-2012 Originations

Combined Enterprises and FHA Medians



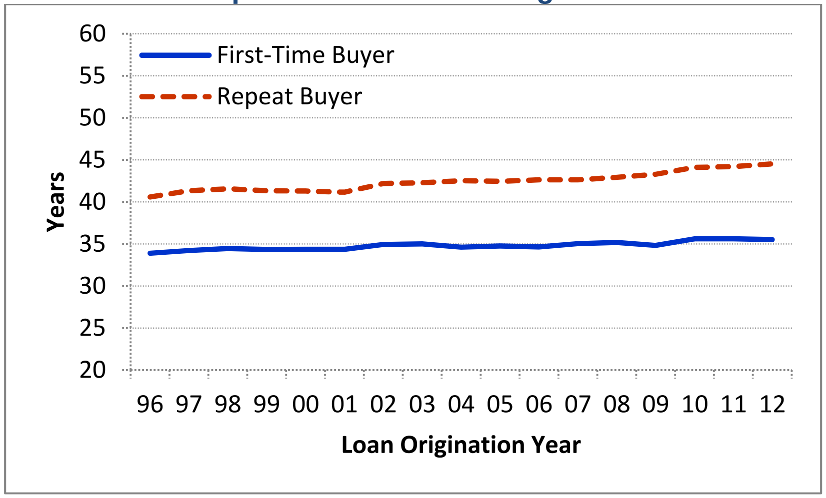
Source: FHFA

Separate Enterprises and FHA Medians



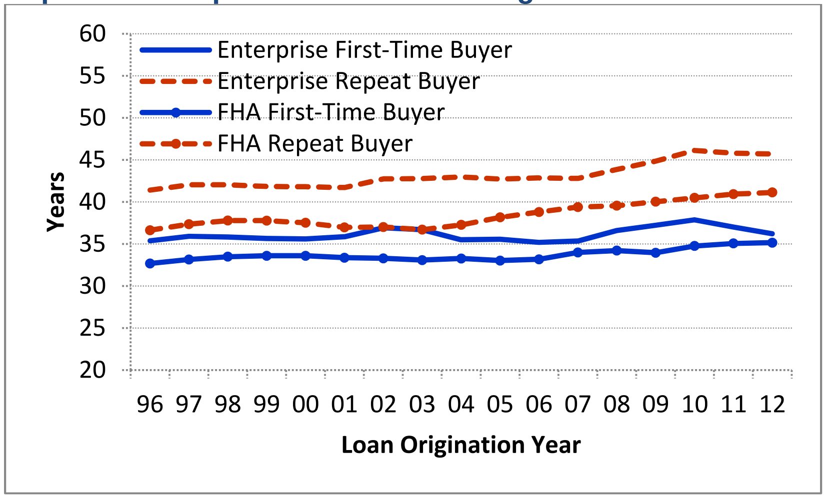
Source: FHFA

Combined Enterprises and FHA Averages



Source: FHFA

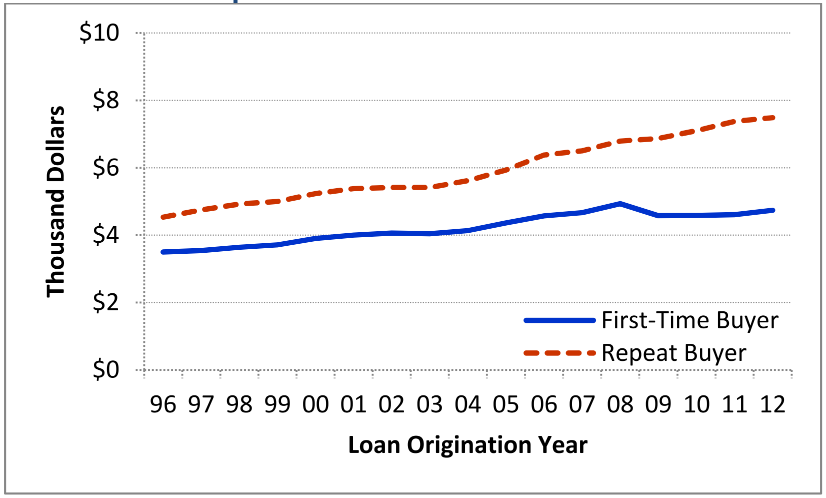
Separate Enterprises and FHA Averages



Source: FHFA

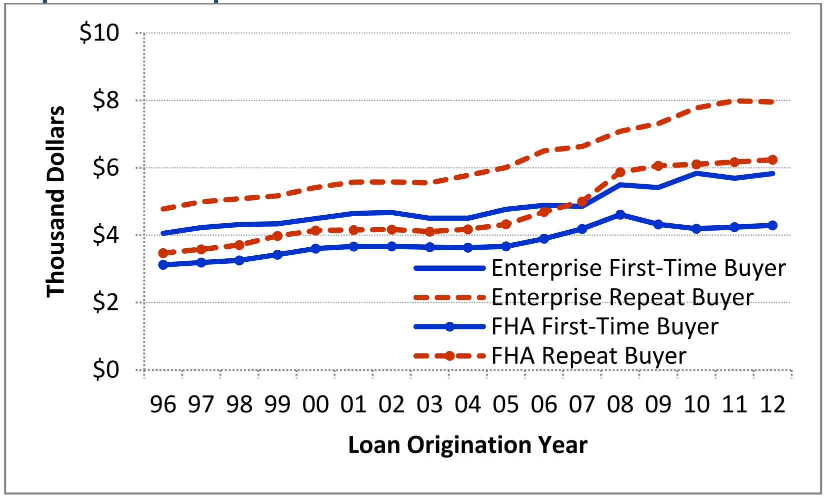
Appendix Exhibit 5B. Time-Series of Borrower Monthly Income by Entity and Homebuyer Type, 1996-2012 Originations

Combined Enterprises and FHA Medians



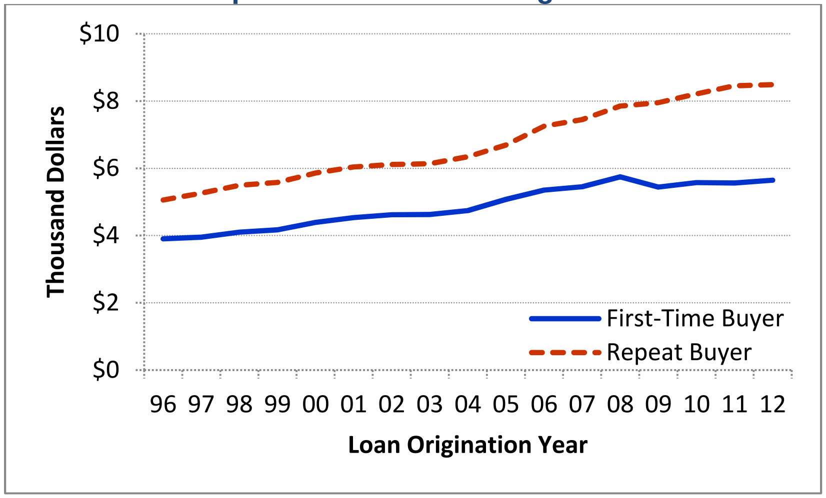
Source: FHFA

Separate Enterprises and FHA Medians



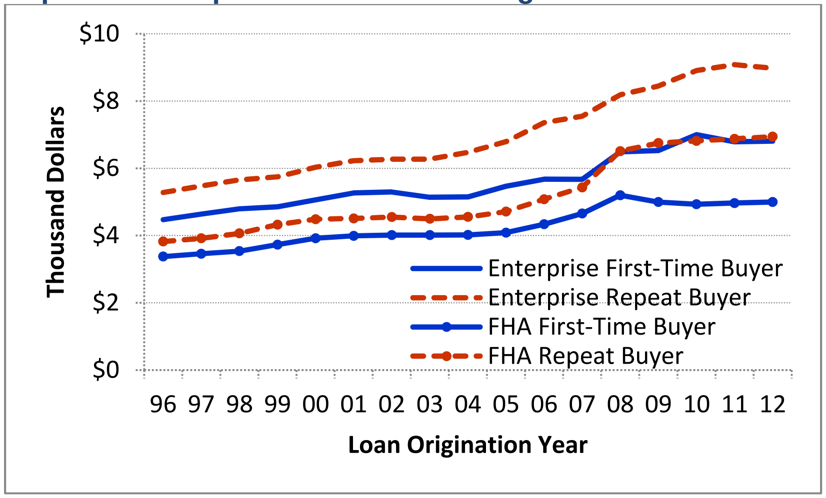
Source: FHFA

Combined Enterprises and FHA Averages



Source: FHFA

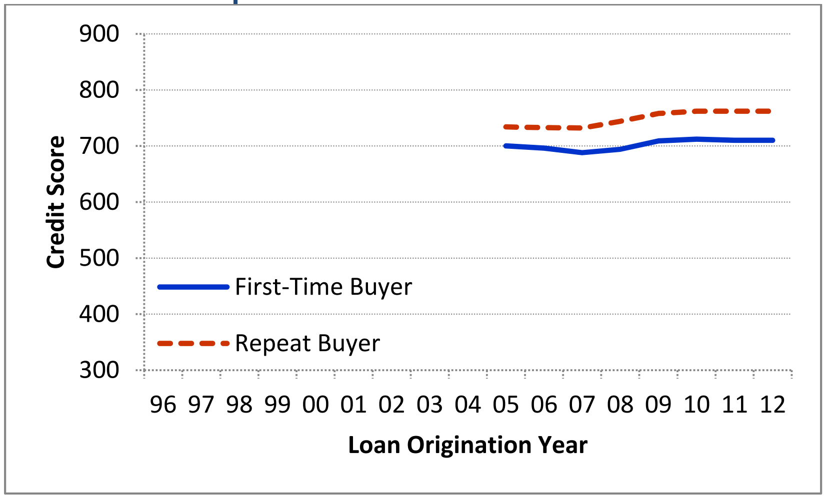
Separate Enterprises and FHA Averages



Source: FHFA

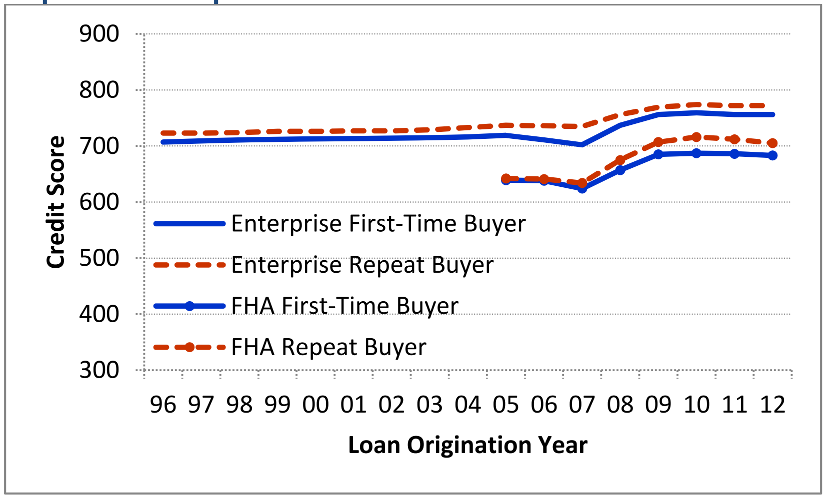
Appendix Exhibit 5C. Time-Series of Borrower Credit Score by Entity and Homebuyer Type, 1996-2012 Originations

Combined Enterprises and FHA Medians



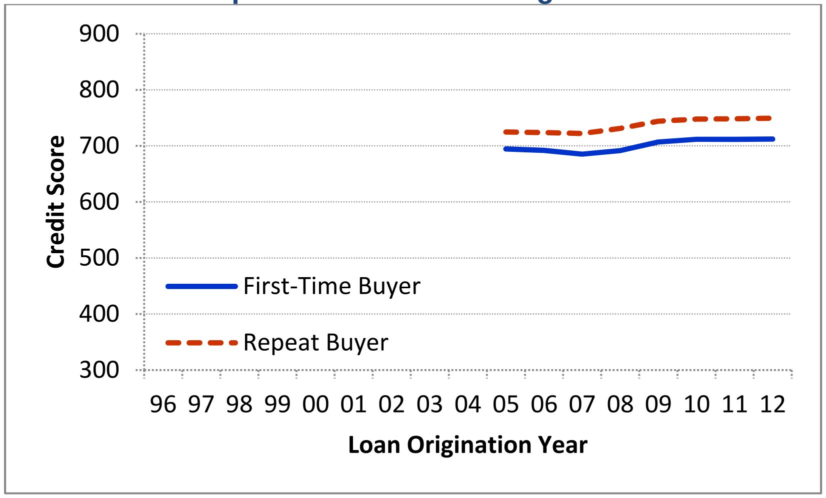
Source: FHFA

Separate Enterprises and FHA Medians



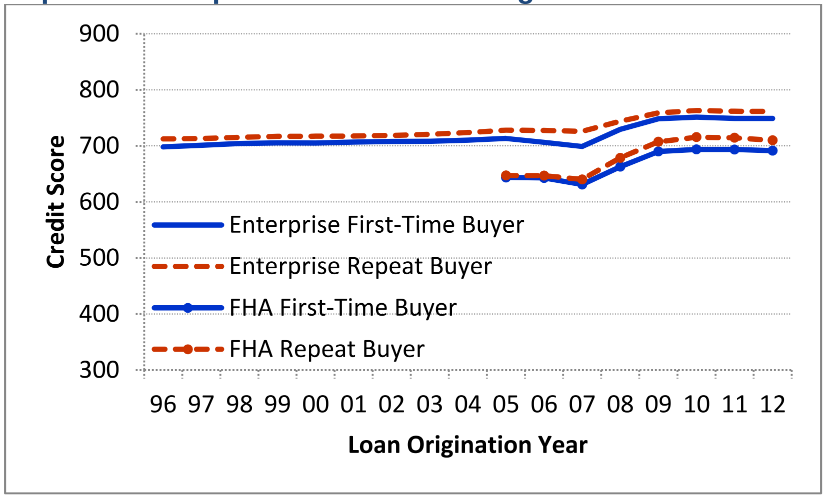
Source: FHFA

Combined Enterprises and FHA Averages



Source: FHFA

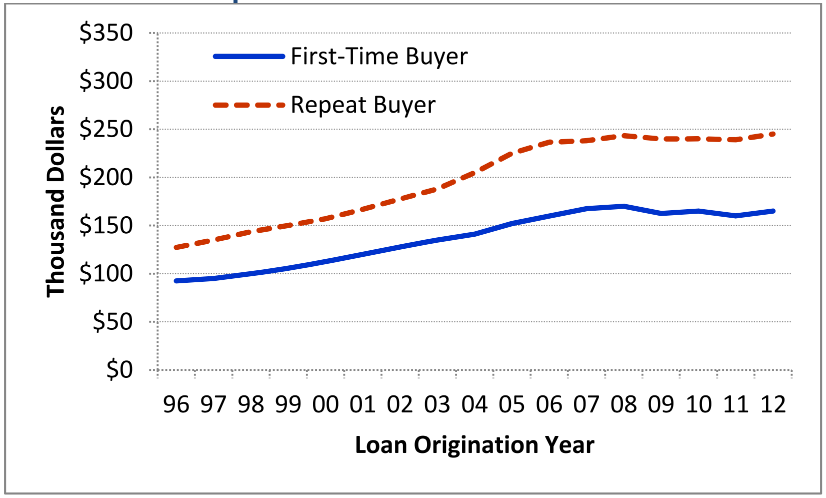
Separate Enterprises and FHA Averages



Source: FHFA

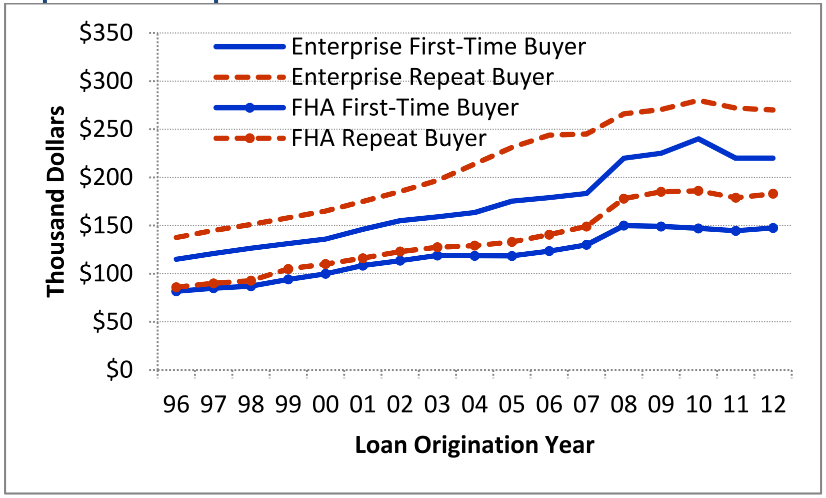
Appendix Exhibit 5D. Time-Series of Property Value by Entity and Homebuyer Type, 1996-2012 Originations

Combined Enterprises and FHA Medians



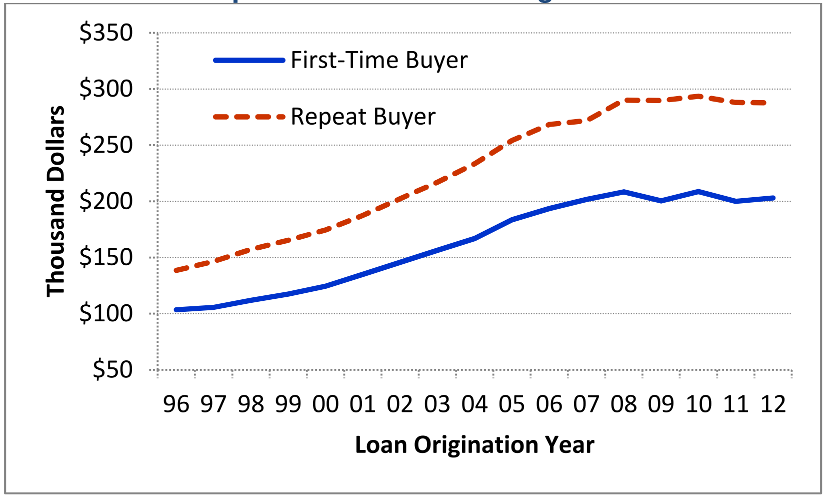
Source: FHFA

Separate Enterprises and FHA Medians



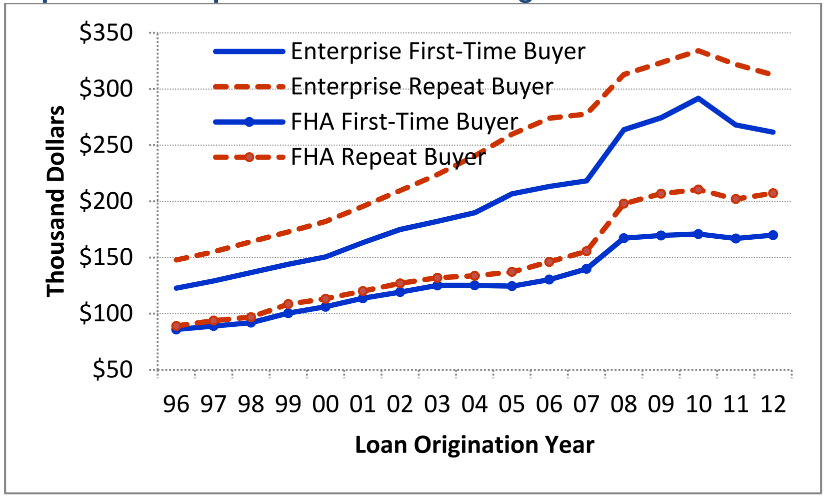
Source: FHFA

Combined Enterprises and FHA Averages



Source: FHFA

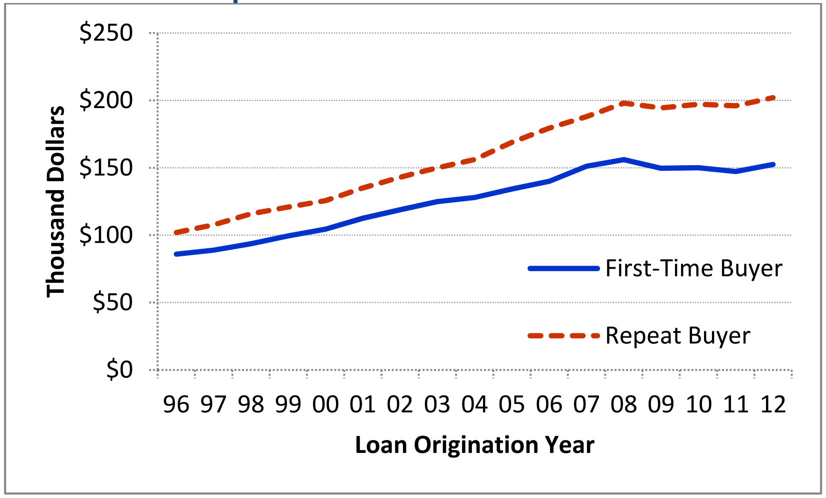
Separate Enterprises and FHA Averages



Source: FHFA

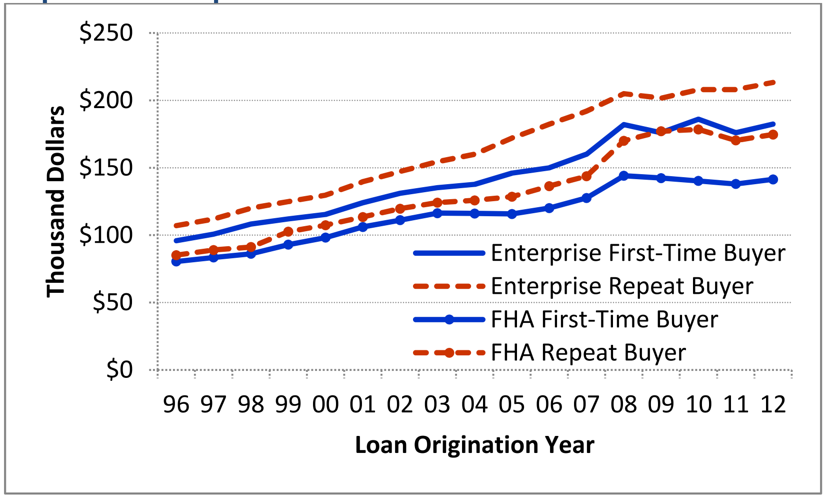
Appendix Exhibit 5E. Time-Series of Loan Amount by Entity and Homebuyer Type, 1996-2012 Originations

Combined Enterprises and FHA Medians



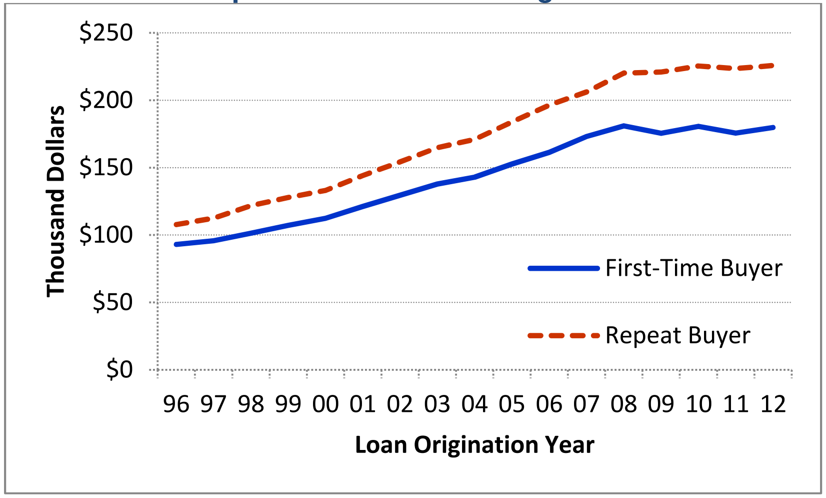
Source: FHFA

Separate Enterprises and FHA Medians



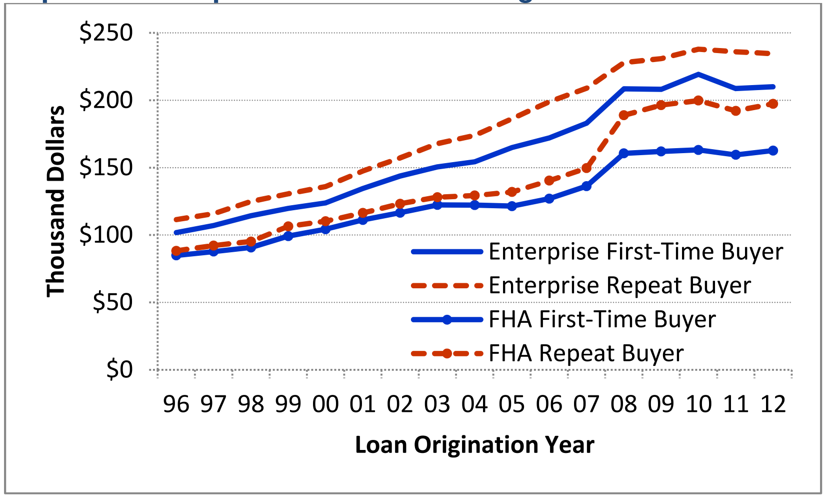
Source: FHFA

Combined Enterprises and FHA Averages



Source: FHFA

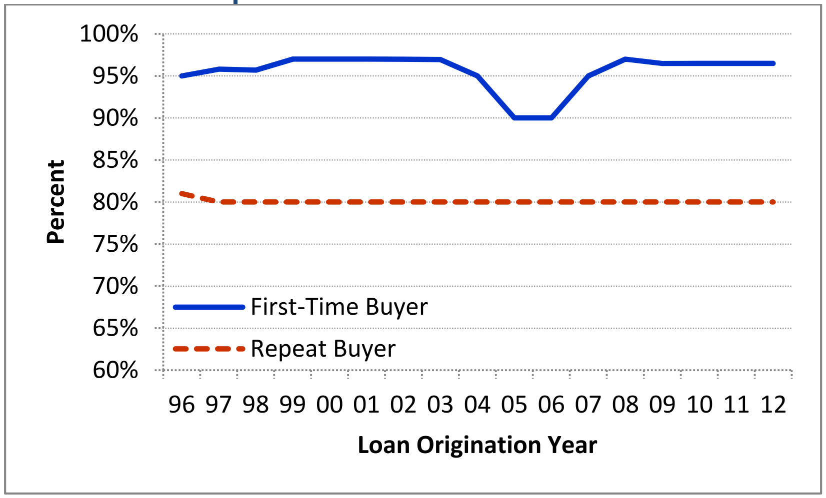
Separate Enterprises and FHA Averages



Source: FHFA

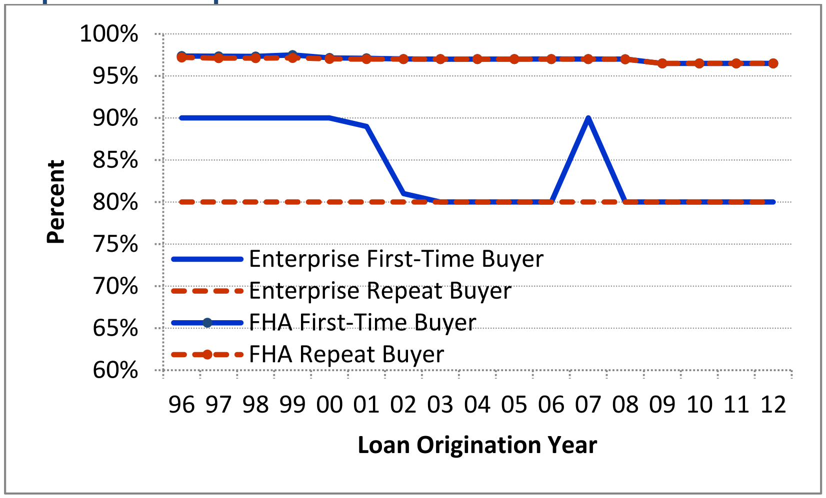
Appendix Exhibit 5F. Time-Series of Loan-to-Value Ratio by Entity and Homebuyer Type, 1996-2012 Originations

Combined Enterprises and FHA Medians



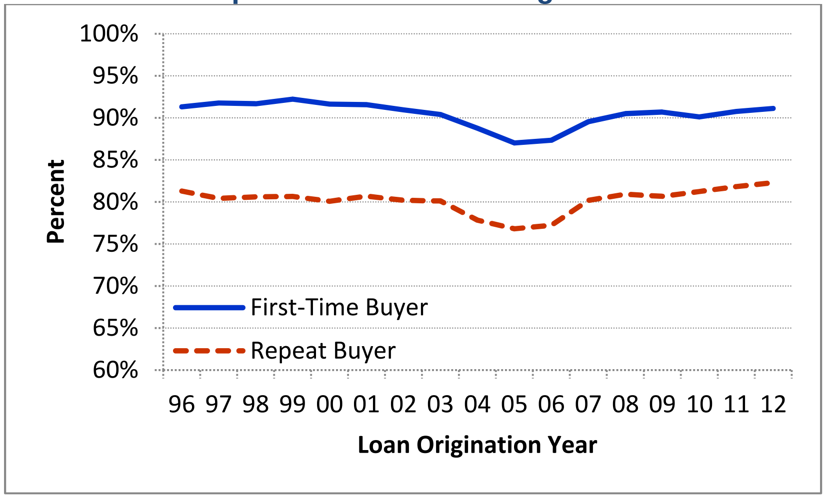
Source: FHFA

Separate Enterprises and FHA Medians



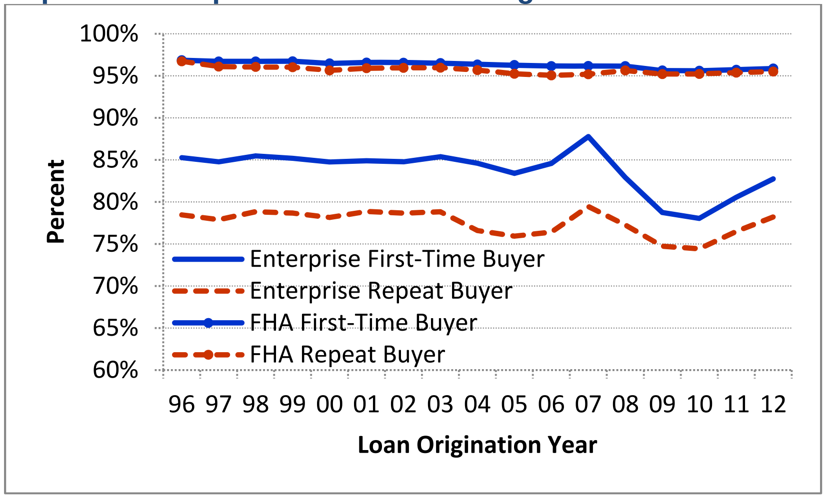
Source: FHFA

Combined Enterprises and FHA Averages



Source: FHFA

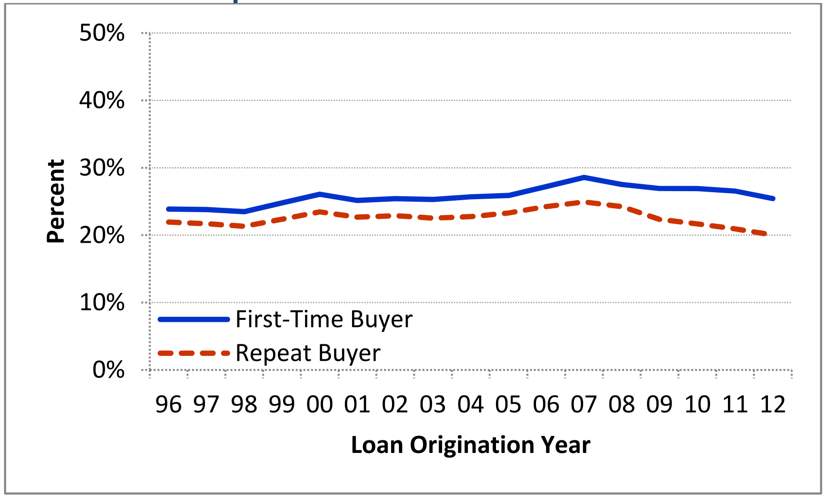
Separate Enterprises and FHA Averages



Source: FHFA

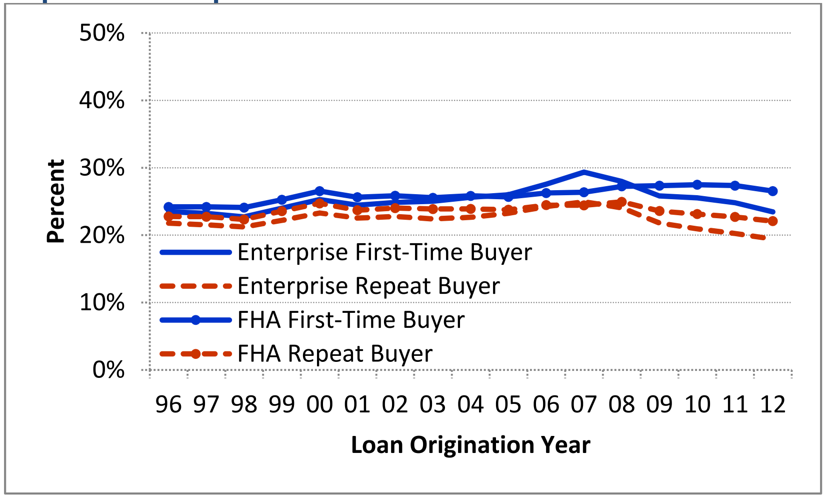
Appendix Exhibit 5G. Time-Series of Front-End Debt-to-Income Ratio by Entity and Homebuyer Type, 1996-2012 Originations

Combined Enterprises and FHA Medians



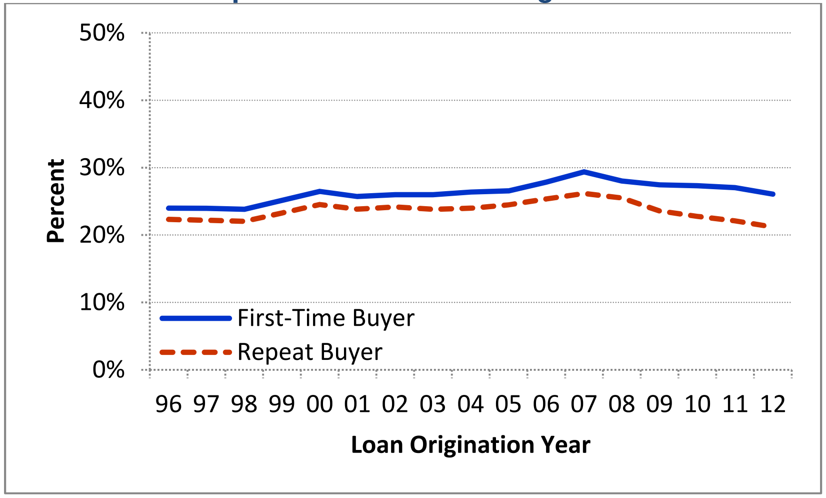
Source: FHFA

Separate Enterprises and FHA Medians



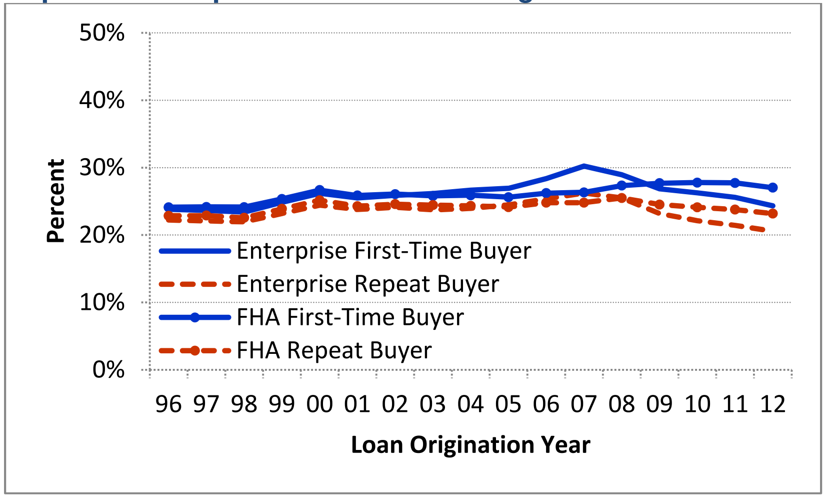
Source: FHFA

Combined Enterprises and FHA Averages



Source: FHFA

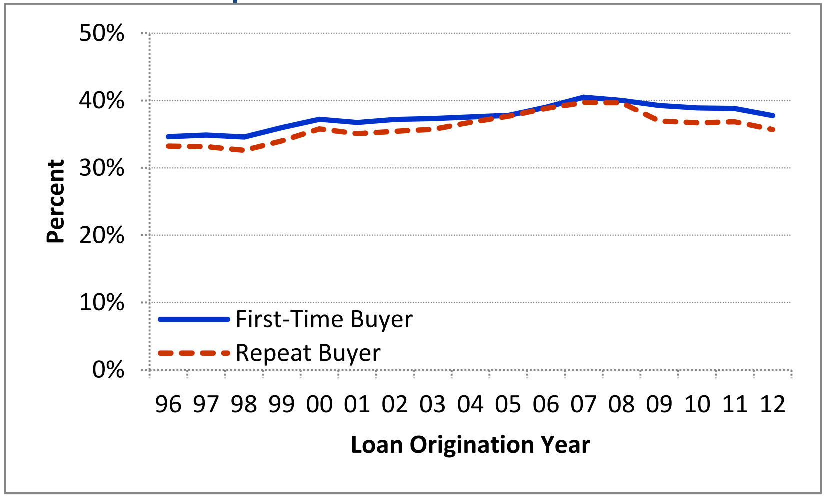
Separate Enterprises and FHA Averages



Source: FHFA

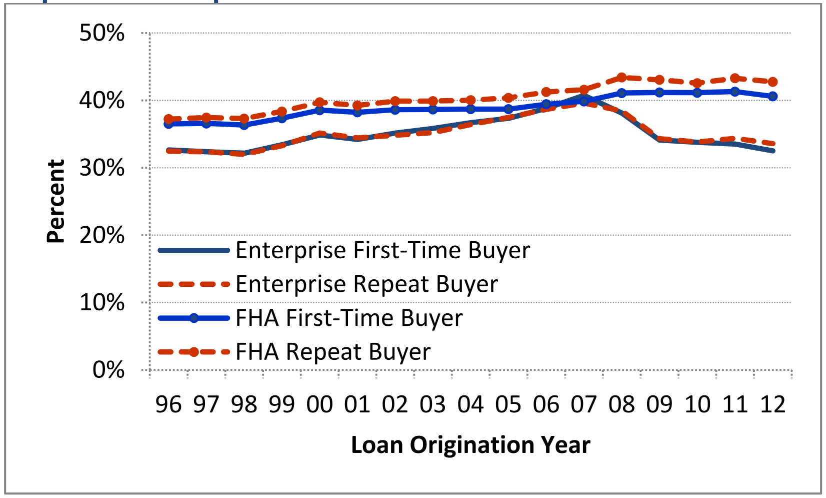
Appendix Exhibit 5H. Time-Series of Back-End Debt-to-Income Ratio by Entity and Homebuyer Type, 1996-2012 Originations

Combined Enterprises and FHA Medians



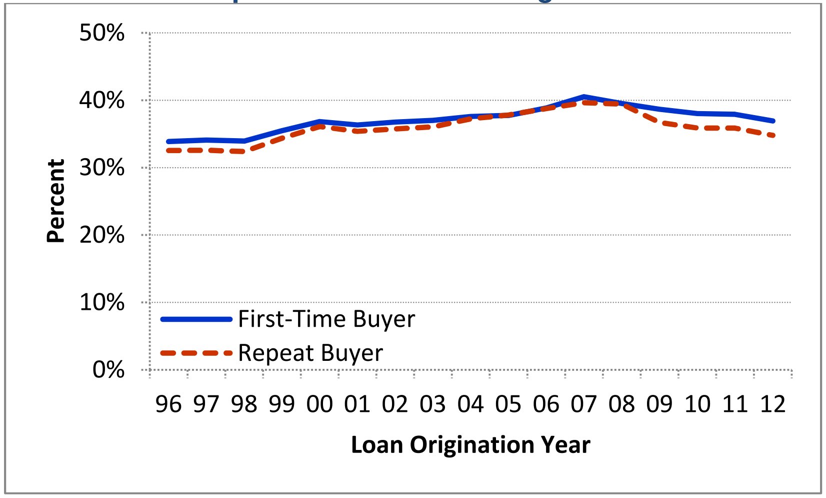
Source: FHFA

Separate Enterprises and FHA Medians



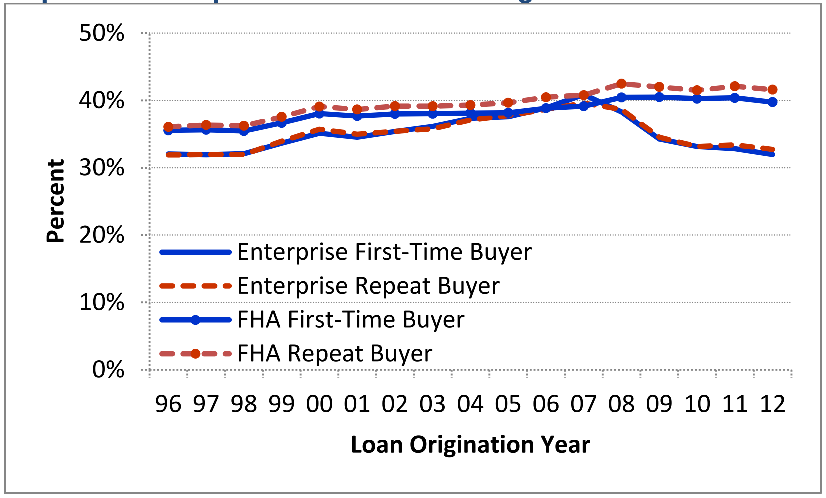
Source: FHFA

Combined Enterprises and FHA Averages



Source: FHFA

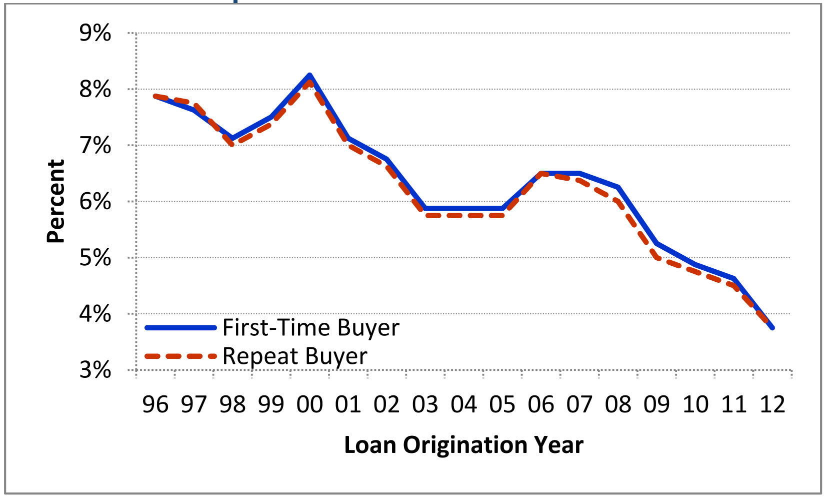
Separate Enterprises and FHA Averages



Source: FHFA

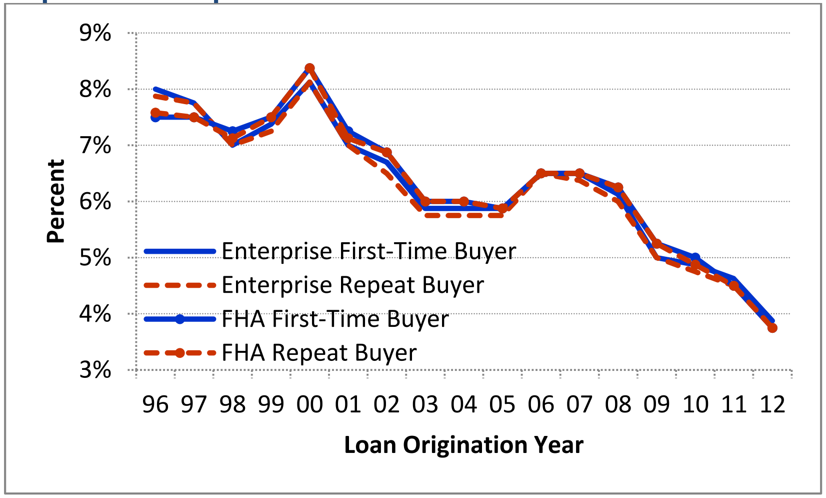
Appendix Exhibit 5I. Time-Series of Loan Rate by Entity and Homebuyer Type, 1996-2012 Originations

Combined Enterprises and FHA Medians



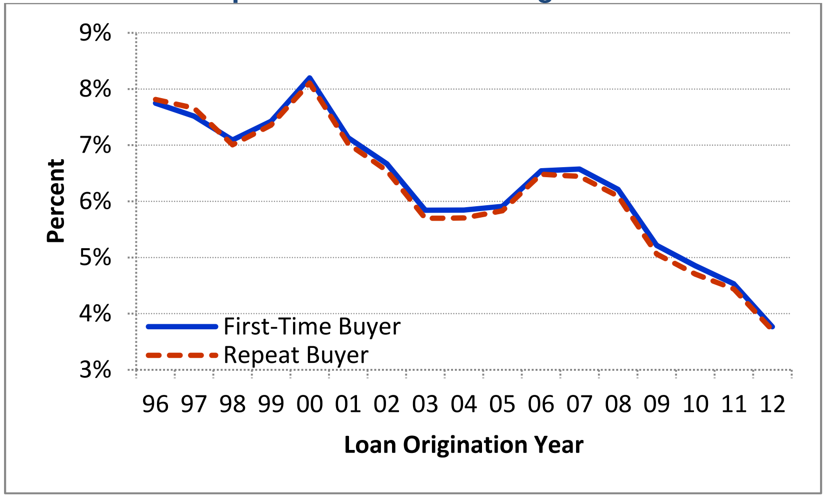
Source: FHFA

Separate Enterprises and FHA Medians



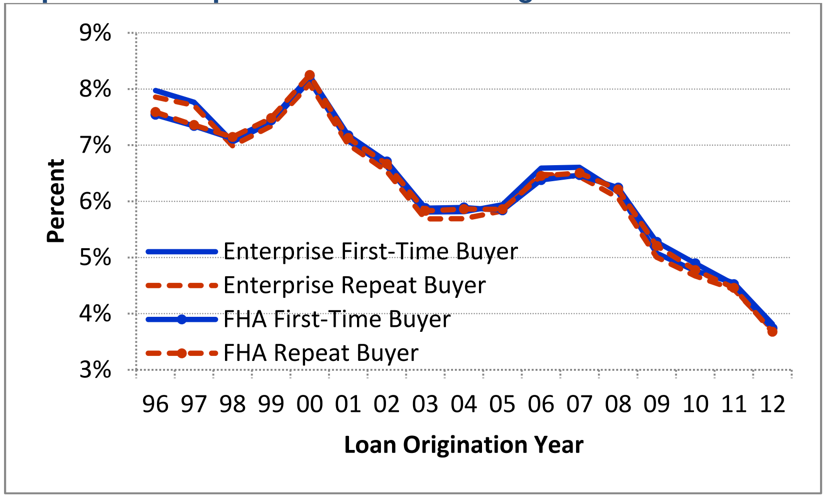
Source: FHFA

Combined Enterprises and FHA Averages



Source: FHFA

Separate Enterprises and FHA Averages



Source: FHFA