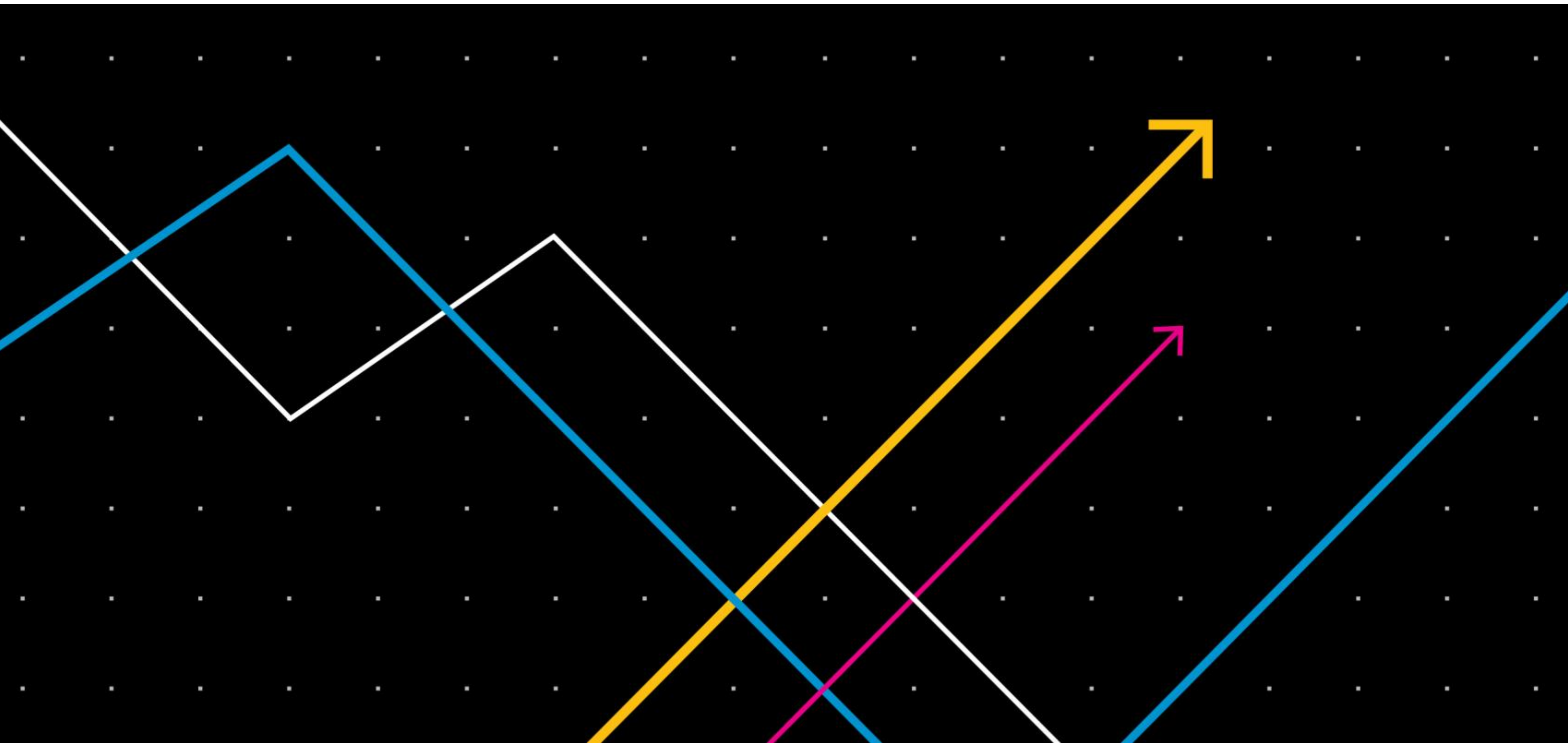

WORKING PAPER

The Impact of Higher Interest Rates on the Mortgage Market

Laurie Goodman

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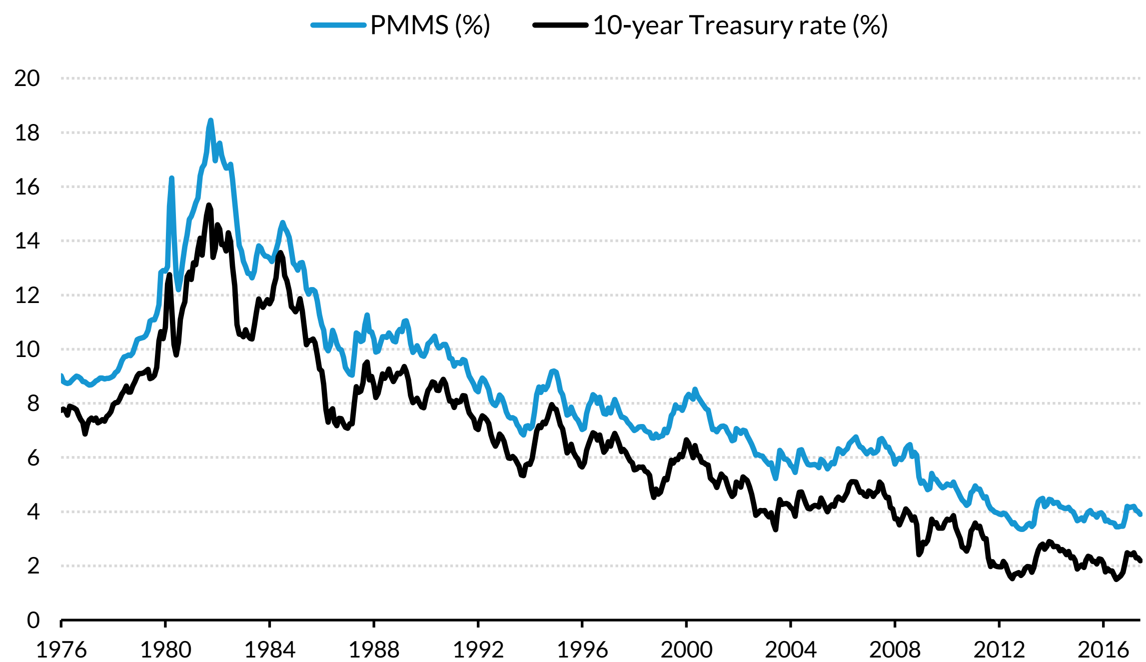
The Impact of Higher Interest Rates on the Mortgage Market

Over the past 35 years, we have witnessed a secular decline in interest rates. After peaking at over 15 percent in 1981, the 10-year Treasury note traded at 1.83 percent before the presidential election in November 2016 (figure 1). Similarly, primary mortgage rates—the rate borrowers pay to take out a new 30-year fixed-rate mortgage—fell from over 18 percent in 1981 to 3.54 percent before the 2016 election. In July 2017, as we are preparing this paper, rates are up, with the 10-year Treasury note trading 44 basis points (bps) higher in yield and the rates on 30-year mortgages up 49 bps since November 2016.

FIGURE 1

30-Year Fixed-Rate Mortgage Rate and 10-Year Treasury Rate



Sources: Freddie Mac PMMS, Board of Governors of the Federal Reserve System, and the Urban Institute.
Note: PMMS = Primary Mortgage Market Survey, a 30-year fixed-rate mortgage rate from Freddie Mac.

How much mortgage rates will rise is unclear, but the secular decline in rates is over. The Federal Reserve has raised rates three times since the financial crisis and has announced plans for winding down their $1.78 trillion mortgage portfolio and their $2.45 trillion Treasury portfolio.

This paper identifies and examines six impacts on the mortgage market from the end of the secular decline in interest rates:

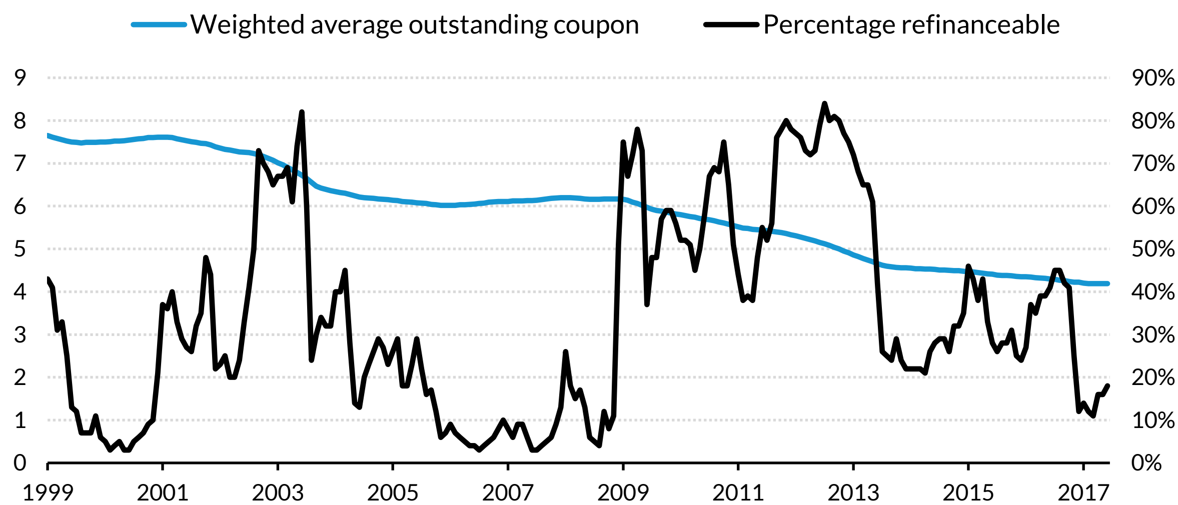
1. Mortgage origination volumes will decrease.
2. The decline in origination volumes will lower profitability, spurring industry consolidation.
3. Prepayment speeds will slow because of three effects: the decrease in refinanceability, the lock-in effect, and the secular decline in mobility. This third effect is difficult to capture in models, as we have not had a sustained period of rate increases during the past 35 years.
4. Home prices will increase. The stronger economy and higher inflation will be positive for home prices, and while the decline in affordability is a challenge for the market, homes are still affordable nationwide in a historical context. We believe the first two effects will dominate.
5. First-time homebuyer activity will increase while repeat buyers will continue to languish.
6. We could see the return of second liens, which were made extinct in the wake of the financial crisis.

Mortgage Origination Volumes Will Decline

Interest rates peaked in 1981 and have since declined. Periods of rate increases have been short lived. The prepayment option for mortgages has been repeatedly exercised, resulting in a reshaping of the mortgage universe. The weighted average outstanding coupon has gone from 7.65 percent in 1999 to 4.17 percent in 2017 (figure 2). If we assume refinancing requires a 75 basis point differential between the new primary mortgage rate and the note rate for an outstanding mortgage, approximately 18 percent of the current 30-year mortgage universe is refinanceable. We calculate the 75 bps from Bankrate data indicating the average borrower will pay fees of $2,100 on a $200,000 loan, not including title search fees or title insurance.[1] If we add 1 percent for title search and title insurance, the total required up front to refinance a $200,000 loan is 2.05 percent, or about 52 bps in outright costs. In addition, the borrower needs to save at least 25 bps because of the hassle factor.

FIGURE 2

As Interest Rates Have Risen, Most of the Mortgage Universe Is Nonrefinanceable



Sources: eMBS, Freddie Mac Primary Mortgage Market Survey, and the Urban Institute.

This may overstate the refinanceability of the current market because rates have been so low for so long that borrowers who are most willing to refinance have likely already done so. The current mortgage rate, measured by the Freddie Mac Primary Mortgage Market Survey (PMMS) rate, is 4.03 percent, and the Mortgage Bankers Association refinance index (a weekly index that measures the number of refinance applications submitted) is 1368. When the PMMS rate was at a similar level in June 2013, the Mortgage Bankers Association refinance index was 3208.

In the wake of the 2016 presidential election and the continued recovery of the US economy, no more substantial rate declines are likely, suggesting modest refinance activity and a substantial drop in mortgage origination. Fannie Mae, Freddie Mac, and the Mortgage Bankers Association provide estimates of the expected dollar volume of mortgage originations. All three project a sharp drop between 2016 and 2017 and muted declines in 2018. Fannie Mae predicts a 20 percent drop in calendar year 2017 from calendar year 2016 and then a 7 percent drop in 2018. Freddie Mac predicts a 27 percent drop from 2016 to 2017 and then a 3 percent drop in 2018. The Mortgage Bankers Association predicts a 15 percent drop from 2016 to 2017 and then a 1.5 percent drop in 2018. All three projections show a drop in refinance activity from 48 percent in 2016 to 25 percent in 2018. These numbers are higher than our refinanceable share, as people refinance for reasons other than to save on a first mortgage (e.g., cash-out refinancing for home renovation, debt consolidation).

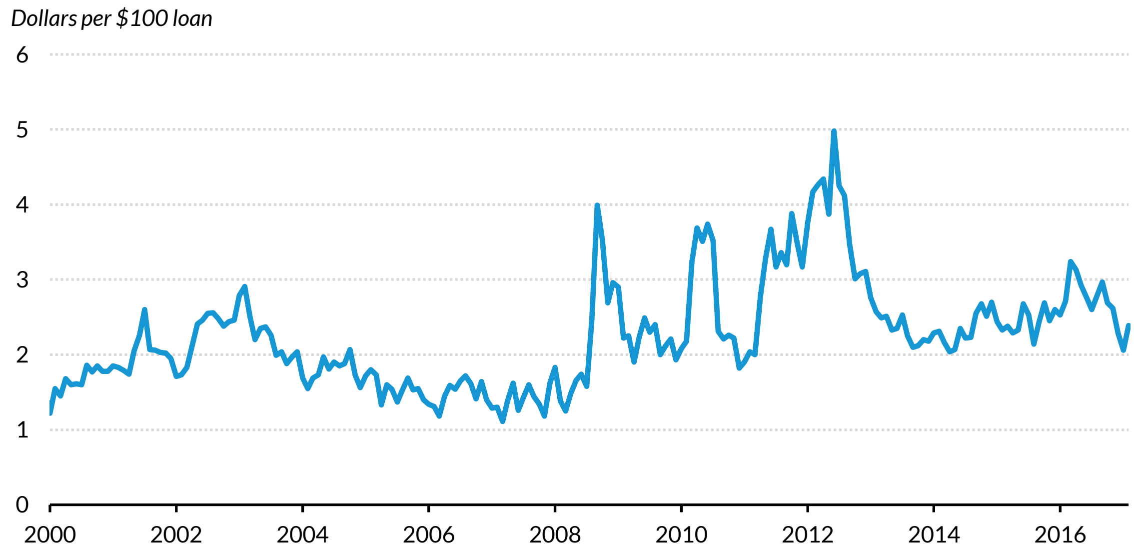
Profitability Will Decline, and Industry Consolidations Will Continue

The drop in mortgage refinancing will also affect profitability. Originators are most profitable during refinance waves, when they are capacity constrained. As interest rates decline and borrowers refinance, it is unnecessary to reduce rates in line with the market, so originators can increase their spreads and still secure sufficient business volume. In contrast, when rates increase, competitive pressures force originators to raise mortgage rates as little as possible to maintain market share.

Figure 3 displays the Federal Reserve Bank of New York's measure of originator profitability and unmeasured costs. This measure uses the sales prices of the mortgage in the secondary market (less par) and adds two sources of profitability: retained servicing (both base and excess servicing, net of guarantee fees), and points paid by the borrower. This series reached a high of $5.00 per $100 of loan amount in 2012, declined, spiked to $3.24 in 2016 as rates fell, and declined to $2.39 as of June 2017.

FIGURE 3

Originator Profitability and Unmeasured Costs

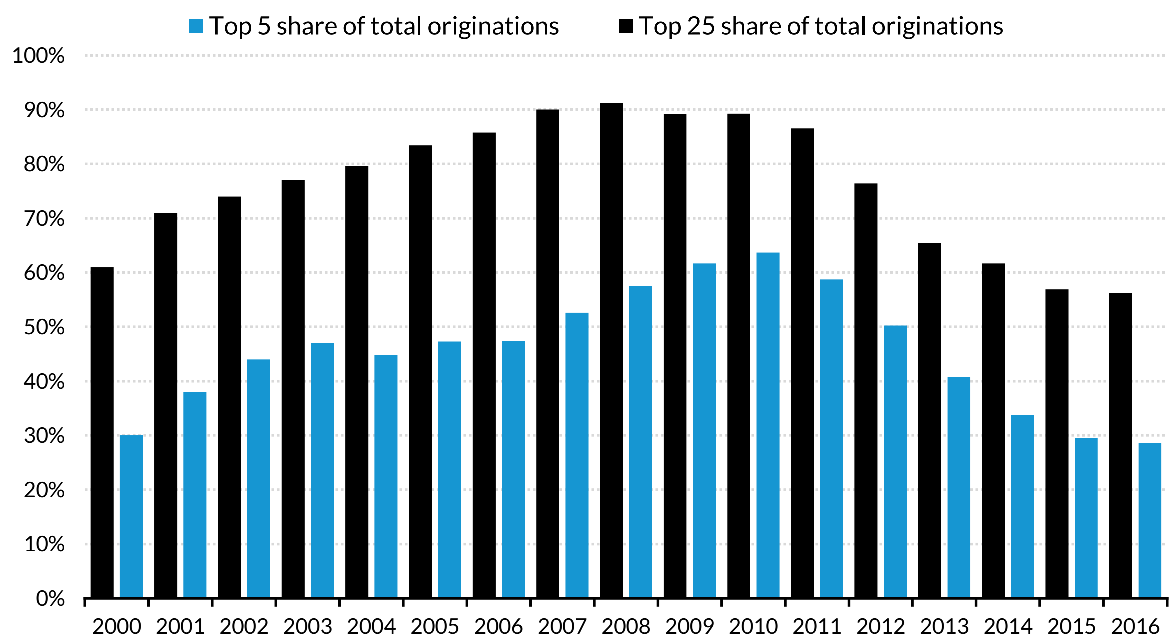


Sources: Federal Reserve Bank of New York (see Andreas Fuster, Laurie Goodman, David Lucca, Laurel Madar, Linsey Molloy, and Paul Willen, "The Rising Gap between Primary and Secondary Mortgage Rates," *Economic Policy Review* 19, no 2. [2013], 17–39) and the Urban Institute.
Note: Originator profitability and unmeasured costs is a monthly (four-week moving) average as discussed in Fuster and coauthors (2013).

This decline in volume and profitability is likely to mean consolidation in an increasingly fragmented industry. Origination concentration has declined significantly since 2011 (figure 4). The market share of the top five originators dropped from 64 percent in 2010 to 29 percent in 2016, and the share of the top 25 originators dropped from 89 percent to 56 percent over the same period. There has been some consolidation in 2017, and we expect more. Stearns Mortgage sold its delegated correspondence lending business to Flagstar Bank, and Home Point Financial acquired Stonegate Mortgage. This gave Home Point full coverage of all loan origination channels and an in-house servicing platform. Hanna Holdings announced in June that it had acquired 1st Priority Mortgage. 1st Priority Mortgage had recently merged with the mortgage broker Nothnagle Home Securities. With these acquisitions, Hanna Holdings will increase its mortgage origination activity.[2]

FIGURE 4

Originator Concentration



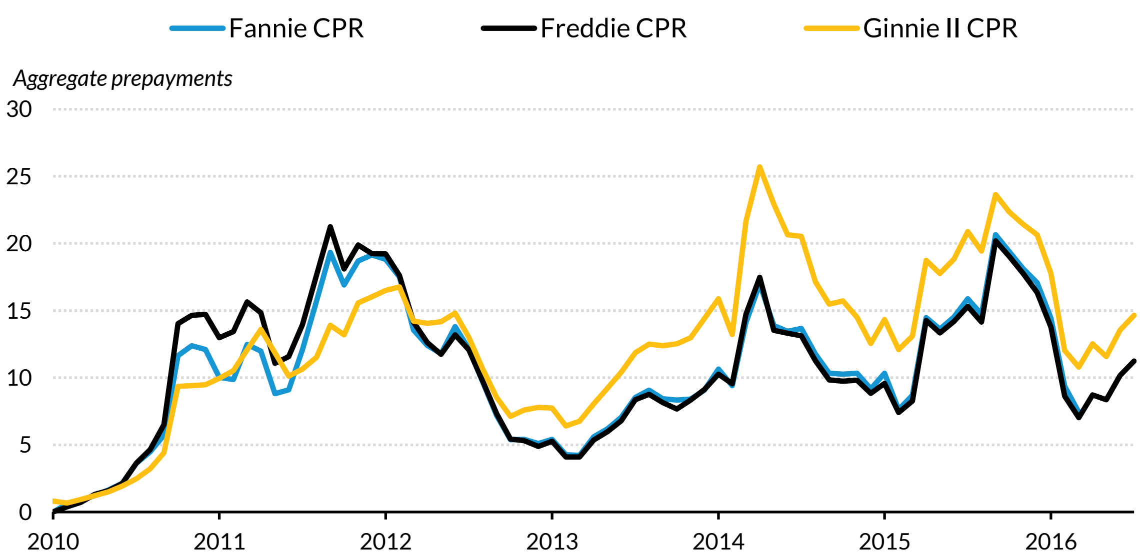
Sources: Inside Mortgage Finance and the Urban Institute.

Prepayment Speeds Will Slow

Prepayment speeds have dropped modestly and should continue to drop as borrowers who see the rise in rates on the horizon complete their refinancing. Figure 5 shows aggregate prepayment speeds from 2010 to 2017. These speeds have a heavy seasonal factor (higher speeds in the summer and lower speeds in the winter), which partially masks the slowdown. This drop does not fully reflect the lock-in effect that will become more evident if rates continue to rise. For example, borrowers who have a 3.5 percent mortgage will be reluctant to move simply to buy a home with an extra bedroom if it means their mortgage rate will increase to 4.5 or 5.0 percent. They are more likely to stay where they are and either forgo the extra bedroom or add on to their current home. Borrowers stay in their home longer during periods of higher rates (figure 6). Comparing mortgage rates at the property purchase date and the property sale date using property records data, CoreLogic found that when rates were 1.5 percent lower than at the point of origination, one-quarter of owners resold their home within five years, but when rates were 1.5 percent higher, it took about a year longer for one-quarter of owners to resell.[3]

FIGURE 5

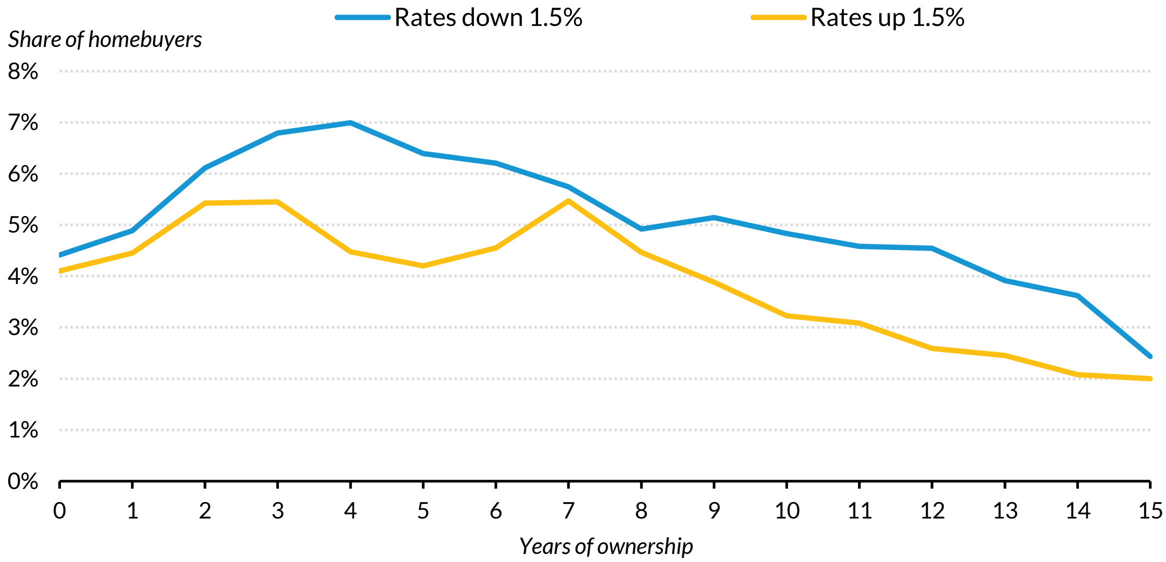
Aggregate Prepayment Speeds



Sources: Credit Suisse and the Urban Institute.
Notes: CPR = conditional prepayment rate. Data as of June 2017.

FIGURE 6

Share of Homebuyers Who Sell by Length of Ownership, 1976–2016



Source: CoreLogic.

The third contributor to decreased prepayment speeds (after decreased refinancability and the lock-in effect) is the general declining mobility of US households. US households have experienced a secular decline in mobility for owners and renters since the 1980s (figure 7). This has been well documented by Molloy, Smith, and Wozniak (2011), who show the decline since 1980 occurs among all age groups and all races and ethnicities. Although several factors contribute to this decline, including the rise of dual-career families and some ability to work remotely, these factors fail to explain the extent of the decline.

It is difficult to know how big an impact this roughly 50 percent decline in mobility will have because there are not enough periods of rising rates in the past four decades to create prepayment models that capture this effect. These prepayment speeds could be slower than predicted by most prepayment models. Mortgages may be held longer and become longer-duration instruments than is being captured by traditional prepayment models. This is not a judgement. We are pointing out a modeling issue. The new secular decline in geographic mobility is hard to detect through prepayment modeling. If mortgages become longer-duration instruments than models predict, rate increases could create a larger mortgage sell-off than anticipated.

FIGURE 7A

Share of Movers within the Past Year: Owners

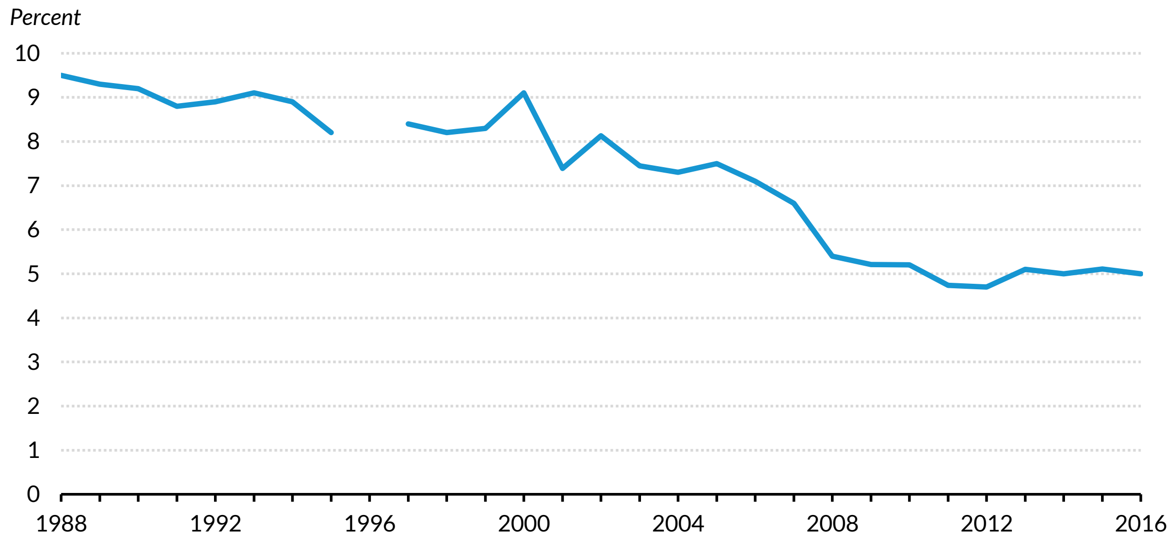
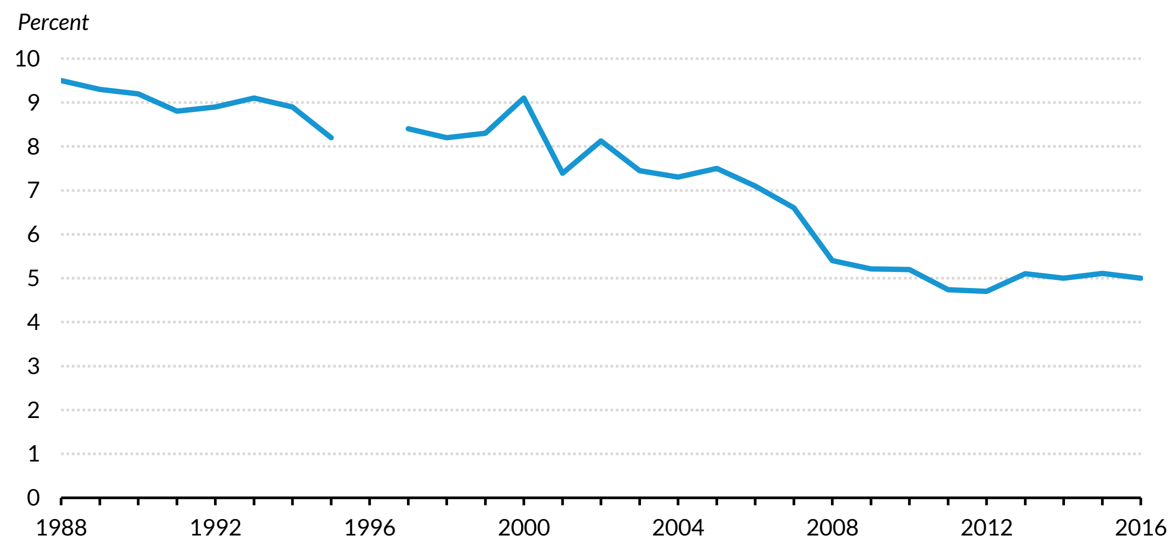


FIGURE 7B

Share of Movers within the Past Year: Renters



Source: US Census Bureau, Current Population Survey.

Home Prices Are Expected to Increase

Higher interest rates have several effects on home prices. First, higher rates are generally associated with a stronger economy. That means wages are generally rising, making that home more affordable, and borrowers are more confident about their job status, making them more willing to borrow to buy a home. In addition, higher interest rates are often associated with inflationary periods, during which real assets, such as homes, rise in value. Offsetting this, higher interest rates mean higher monthly payments, which crimps affordability. And with lower affordability, home price increases would be muted.

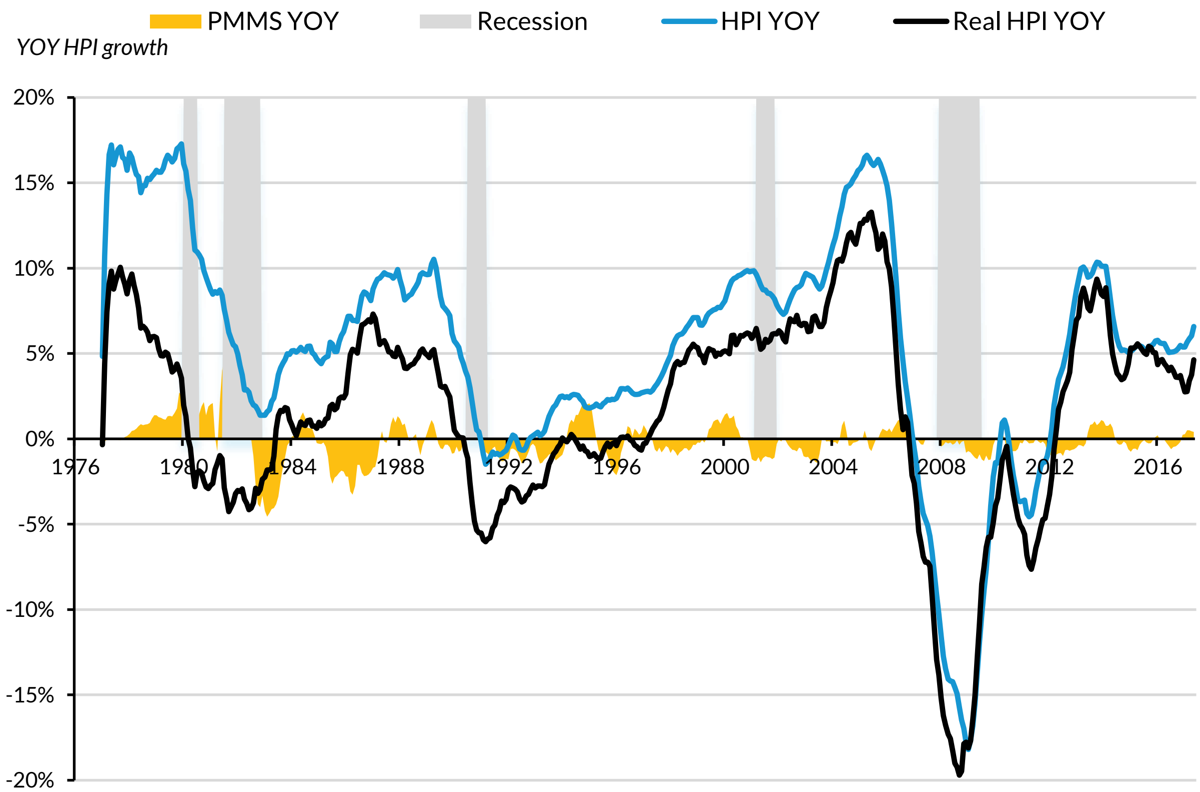
Higher interest rates are generally positive for home prices, despite decreasing affordability.

Figure 8 looks at the relationship between home prices and interest rates over the past 40 years. The lines show nominal and real home prices. The mountains above the zero axis illustrate periods when rates were higher than a year earlier. Interest rates rose dramatically from 1976 to 1981, making affordability an issue for many families. Over this period, home prices rose steadily.

After peaking in 1981, there were only three periods of prolonged higher rates in 1994, 2000, and the “taper tantrum” in 2013. In each period, home price appreciation was robust. The only nationwide declines in nominal home prices were during periods of economic weakness, characterized by falling interest rates—the Great Recession and the recession in the early 1990s (figure 8).

FIGURE 8

Rising Interest Rates Associated with Increases in Nominal Home Prices



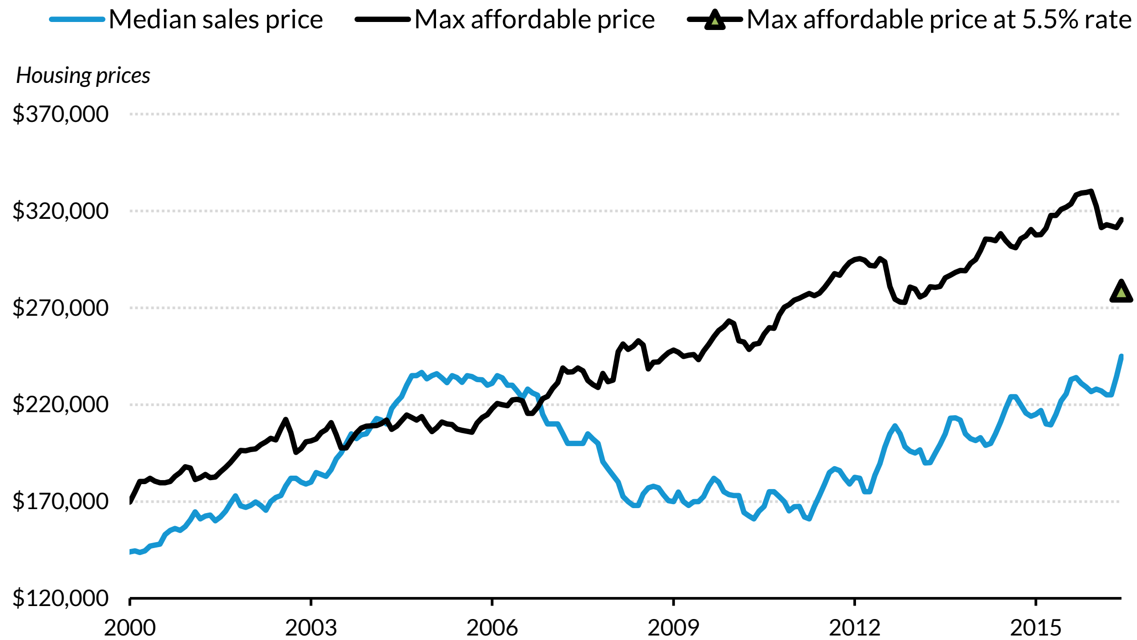
Sources: CoreLogic, Freddie Mac PMMS, Bureau of Labor Statistics, and the Urban Institute.
Notes: HPI = Home Price Index; PMMS = Primary Mortgage Market Survey; YOY = year over year. "PMMS YOY" indicates year-over-year change in 30-year fixed-rate mortgage rate based on Freddie Mac PMMS. "HPI YOY" indicates year-over-year growth rate of nominal HPI. "Real HPI YOY" indicates year-over-year growth rate of HPI in 2000 dollars.

Even though nominal home prices continued to rise as rates rose, the real home price appreciation, calculated by deflating home price increases by actual inflation, is more modest. From 1976 to 1981, the high nominal interest rates reflected high realized inflation and inflationary expectations. Real home prices were negative.

Regarding affordability, higher interest rates mean higher payments. But today's low interest rates make mortgages affordable in a historical context. Figure 9 shows the maximum home price families could afford, assuming they spend 28 percent of their income on housing-related expenses. Housing-related expenses include a 20 percent down payment, a 30-year mortgage at the prevailing PMMS rate, and taxes and insurance at an additional 1.75 percent of the home's value. Except from 2005 to 2007, the maximum affordable home price has been greater than the actual home price. If interest rates increased to 5.5 percent, we would restore the average affordability that prevailed from 2000 to 2003.

FIGURE 9

National Housing Affordability, 2000–16



Sources: CoreLogic, US Census Bureau, Freddie Mac, and the Urban Institute.

National affordability is, of course, different than local affordability. Some areas, particularly cities in California (e.g., Los Angeles, San Francisco, San Jose), are significantly less affordable than they were from 2000 to 2003, while other areas (e.g., Chicago, Cincinnati, Cleveland, Columbus, and Pittsburgh) are significantly more affordable.

As rates rise, home prices are likely to continue to rise nationwide, causing new homebuyers to confront higher prices and higher interest payments. Even if wages and incomes rise as quickly as home prices (historically, they have not), the effect of higher rates alone means homebuyers are likely to spend a higher share of their income on mortgage payments.

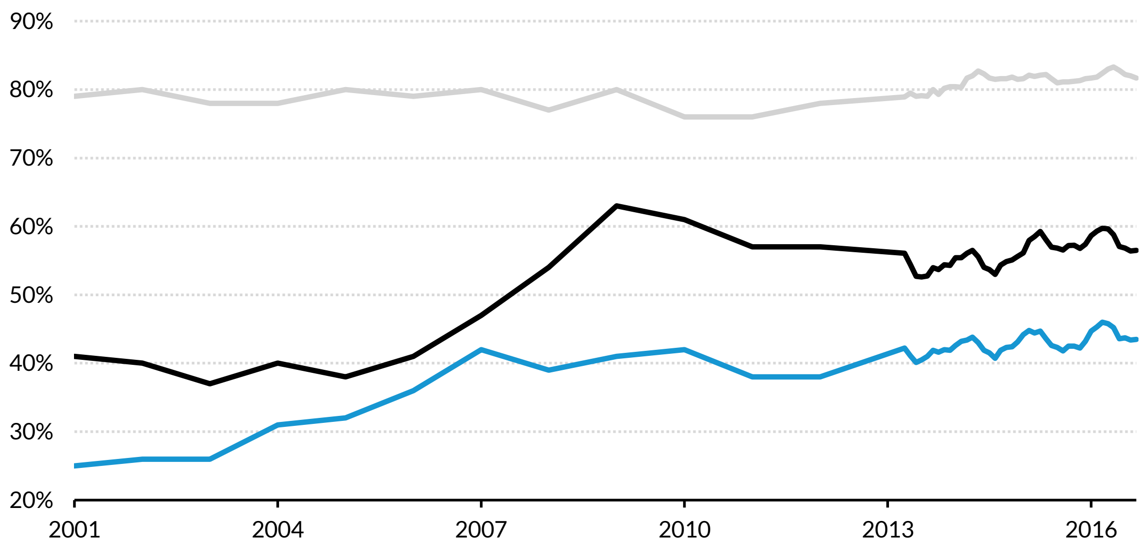
Home price increases are a double-edged sword. On one hand, strong home price growth allows households to build wealth and accumulate equity to move to a larger home or one in a better school district. Home equity is the largest source of wealth for most Americans (JCHS 2015, appendix table W-2). On the other hand, strong home price growth and higher interest rates make homeownership less affordable for households who are not homeowners. And in a tight credit environment, this translates into lower future homeownership rates (Goodman, Pendall, and Zhu 2015).

Repeat Homebuyers Will Continue to Languish

Although the perception is that first-time homebuyer activity is down, repeat homebuyers are actually faring worse. Figure 10 shows the first-time homebuyer share for Federal Housing Administration (FHA) and government-sponsored enterprise (GSE) mortgages. Eighty-three percent of FHA purchase mortgages and 48 percent of GSE mortgages went to first-time homebuyers in April 2017. In the early 2000s, the first-time homebuyer share was lower. (US Department of Veterans Affairs mortgages do not designate whether the borrower is a first-time or a repeat homebuyer.)

FIGURE 10

First-Time Homebuyer Shares by Channel



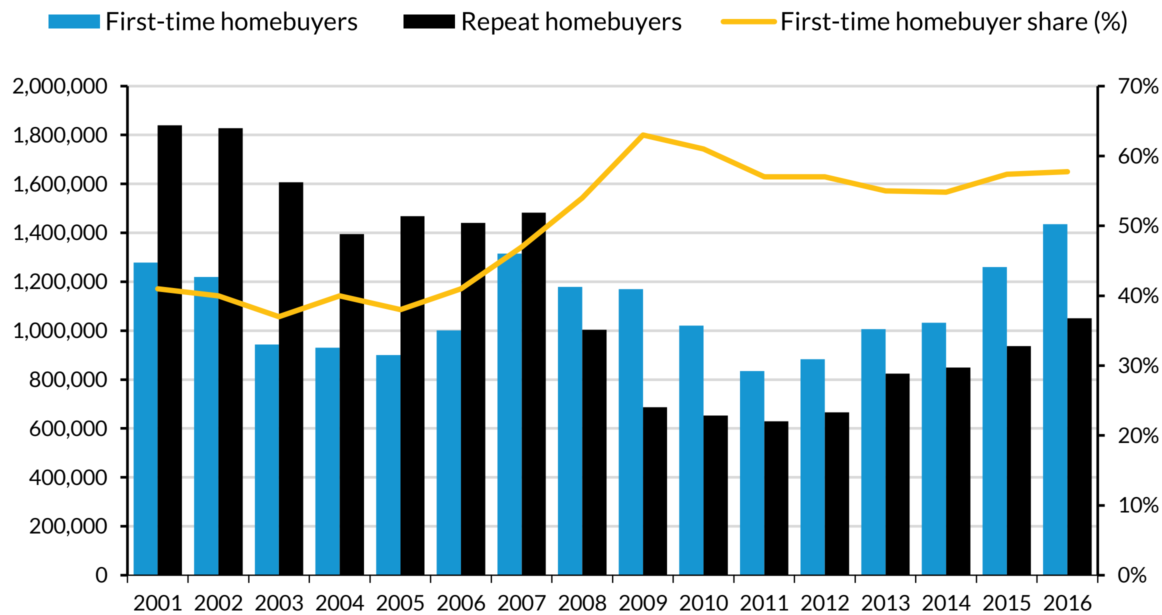
Sources: eMBS, Federal Housing Administration, and the Urban Institute.
Note: All series measure the first-time homebuyer share of purchase loans for principal residences.

The raw numbers for homebuyers for GSE and FHA loans are more dramatic (figure 11). In 2001, there were 1.8 million repeat homebuyers in the market. Although their number declined, until 2009, there were always at least 1 million a year. In 2009, there were just under 700,000 first-time homebuyers. By 2016, this number had recovered to around 1 million, but this was 57 percent of the number from 2001.

In contrast, there were 1.3 million first-time homebuyers in 2001 and 1.4 million in 2016. The variation throughout the 14 years has been less than for repeat homebuyers.

FIGURE 11

First-Time and Repeat Homebuyers, 2001–16



Sources: eMBS, Federal Housing Administration, and the Urban Institute.
Notes: All series measure the first-time homebuyer share of purchase loans for principal residences.

The basic strategy for buying a starter home is to establish a strong credit history, have stable income, and save enough money for a down payment. Tight credit makes qualifying for the loan trickier, but for a borrower with reliable employment, scraping together the down payment is feasible.

Traditionally, borrowers used the equity in their starter home to put down a larger down payment on their second home. But under current conditions, less equity has been built up. Moreover, real incomes have been flat, making it difficult to make that larger monthly payment.

The situation is likely to get worse. As rates rise, the lock-in effect will further depress the repeat homebuyer market, as current homeowners stay where they are to keep their current mortgage rates.

The Second-Lien Market May Return

If borrowers are less prone to move and more prone to remodel their home, where will they obtain the funds for remodeling? As rates drop, creating refinance wave after refinance wave, many borrowers use cash-out refinancing.

In a rising-rate environment, refinancing is no longer economically favorable, but a cash-out refinance may be. If a borrower needs 10 percent of the value of their home, they can keep their 3.5 percent mortgage and take out credit card debt at 18 percent, or they can refinance their mortgage to 4 percent plus 50 bps in costs. In this instance, the cash-out refinance is the cheaper alternative. The latest Freddie Mac cash-out refinance data from the first quarter of 2017 suggest 49 percent of refinancings were cash out, with the borrower increasing the loan amount at least 5 percent through the refinance.[4]

But if rates rise another 200 bps, credit card debt looks more appealing, but credit card debt is expensive. We would expect to see the emergence of a second-lien market, with rates higher than for first-lien mortgages but below the rate for credit card debt.

Second-lien debt has a horrible reputation thanks to the financial crisis. Second liens were used for borrowers with high loan-to-value ratios, with the ratios calculated off inflated appraisals. But the problem was not with the instrument, but with how it was used. Texas prohibited second mortgages if the loan-to-value ratio of the first and the second was above 80 percent, and, consequently, second liens in Texas performed well.

We would expect to see the return of this market, as it is a valuable product in a rising-rate environment.

Conclusion

The end of the 35-year secular decline in interest rates has profound implications for the mortgage market. Higher rates will alter the mortgage landscape in these six dimensions:

1. Mortgage origination volumes will decline.
2. Profitability will decline, and industry consolidations will continue.
3. Prepayment speeds will slow.
4. Home prices will generally increase.
5. Repeat homebuyers will continue to languish.
6. The second-lien market may return.

Notes

1. “Average closing costs by state,” Bankrate, accessed August 3, 2017, http://www.bankrate.com/finance/mortgages/closing-costs/united-states.aspx.
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3. Frank Nothaft, “US Economic Outlook: April 2017,” *Insights* (blog), CoreLogic, April 10, 2017, http://www.corelogic.com/blog/authors/frank-nothaft/2017/04/us-economic-outlook-april-2017.aspx?WT.mc_id=crlg_170719_N5EeT#.WYM2JYTytQJ.
4. “Quarterly Refinance Statistics,” Fannie Mae, accessed August 3, 2017, http://www.freddiemac.com/research/datasets/refinance-stats/index.html.

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About the Author

Laurie Goodman is codirector of the Housing Finance Policy Center at the Urban Institute. The center provides policymakers with data-driven analyses of housing finance policy issues they can depend on for relevance, accuracy, and independence. Before joining Urban in 2013, Goodman spent 30 years as an analyst and research department manager at several Wall Street firms. From 2008 to 2013, she was a senior managing director at Amherst Securities Group LP, a boutique broker-dealer specializing in securitized products, where her strategy effort became known for its analysis of housing policy issues. From 1993 to 2008, Goodman was head of global fixed income research and manager of US securitized products research at UBS and predecessor firms, which were ranked first by *Institutional Investor* for 11 straight years. Before that, she was a senior fixed income analyst, a mortgage portfolio manager, and a senior economist at the Federal Reserve Bank of New York. Goodman was inducted into the Fixed Income Analysts Hall of Fame in 2009. Goodman serves on the board of directors of the real estate investment trust MFA Financial, is an adviser to Amherst Capital Management, and is a member of the Bipartisan Policy Center's Housing Commission, the Federal Reserve Bank of New York's Financial Advisory Roundtable, and Fannie Mae's Affordable Housing Advisory Council. She has published more than 200 journal articles and has coauthored and coedited five books. Goodman has a BA in mathematics from the University of Pennsylvania and an MA and PhD in economics from Stanford University.

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