How Mortgage Lock-In Affects the Price of Housing

There has never been such a huge gap between the rate homeowners pay and the rate for new mortgages.

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Millions of American homeowners are experiencing something somewhat unprecedented: The prevailing rate for a new mortgage significantly exceeds the rate of their current mortgage. This means that, all else being equal, the monthly payment on a new mortgage would substantially exceed a homeowner's current monthly payment. This produces a financial disincentive to reset the terms of a loan by either moving or refinancing. Economists call this phenomenon "mortgage lock-in."

In this article, I explain why mortgage lock-in happens, explore how it affects the housing market, and discuss potential policies to counteract it.

Why Mortgage Lock-In Happens

Mortgage lock-in arose because of trends in mortgage rates and institutional features of the mortgage market.

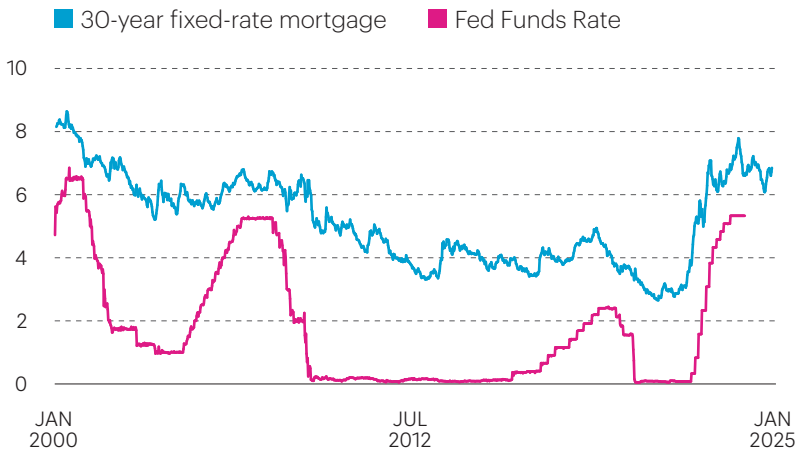
Until recently, mortgage rates had been sinking. The average rate on a 30-year fixed-rate mortgage (FRM) was 12.7 percent in

FIGURE 1

Until Recently, Mortgage Rates Were Sinking

Thanks to the long-term trend and a flurry of refinancing, by 2021 most leveraged homeowners held mortgages at historically low rates.

Effective fed funds rate and 30-year fixed-rate mortgage average, weekly, not seasonally adjusted, 2000–2024



Data Sources: Board of Governors of the Federal Reserve System (U.S.) and Freddie Mac via FRED

the 1980s, 8.1 percent in the 1990s, 6.2 percent in the 2000s, and 4.0 percent in the 2010s. Then, at the onset of the COVID-19 pandemic, substantial monetary easing sent rates below 3 percent for much of 2020 and 2021. Thanks to the long-term trend and a flurry of refinancing, by 2021 most leveraged homeowners held mortgages at historically low rates.

But then rates shot up. In 2022, the Federal Reserve began aggressively raising interest rates to fight a surge in inflation. The rising short-term interest rates—and the expectation of persistently higher rates—led to a spike in mortgage rates. Since 2023, mortgage rates have hovered in the range of 6.5 to 7.5 percent, levels not seen since the late 1990s (Figure 1).

This history matters because of institutional features peculiar to the U.S. mortgage finance system. The 30-year FRM—a long-term, market-insensitive payment contract—is ubiquitous in the United States. It is also asymmetric. Because of the ability to refinance, homeowners can (subject to their attention, time horizon, equity position, and creditworthiness) draw from among the lowest mortgage rates throughout their time in the property. Even when rates go up, their monthly mortgage payment doesn't change.

Moreover, mortgages in the United States are tied to a borrower/property pair. That is, they are neither portable (transferable across properties) nor assumable (transferable to a property's new owner). These features link the mortgage's interest rate to the homeowner/property match, which generates the disincentive to move when rates rise.

Put together, these conditions have produced a stock of homeowners who hold mortgage contracts with rates well below those of new mortgages. By 2023, over 80 percent of outstanding mortgages were locked in at a rate difference of 1 percentage point or more (Figure 2).[1]

Mortgage Lock-In and Moving

The disincentive of individual mortgage holders to sell their current home has several knock-on effects for the housing market—and potentially for the wider economy. Several studies have found that lock-in has reduced the number of sellers entering the market. Much of this work is based on mortgage record data, with samples varying from study to study, but the findings consistently point in the same direction. Using credit report data that identify sellers as homeowners changing zip codes, University of Illinois at Urbana-Champaign associate professor of finance Julia Fonseca and University of Pennsylvania assistant professor of finance Lu Liu find that lock-in reduced moving rates by 16 percent from 2022 to 2024. Using similar data, University of California, Irvine, assistant professor of economics Jack Liebersohn and University of California, Berkeley, professor of public policy and economics Jesse Rothstein constructed a research design that accounts for marketwide trends (such as the effect of higher rates on potential buyers) by comparing mortgage holders with nonmortgage holders. They find

FIGURE 2

Most Homeowners Have Locked in Very Low Rates

Percent of mortgages with a rate more than 1 percentage point below the market rate, 2005–2023

Data Sources: ICE, McDash® and Freddie Mac

that each percentage point of lock-in decreases mobility between zip codes by 7 to 8 percent.

See ***How Lock-in Affects Other Economic Outcomes***

Another way to chart the selling behavior of mortgage holders is to match mortgage records to property sales. Using these matched records, Ross Batzer, Jonah Coste, William M. Doerner, and Michael Seiler of the Federal Housing Finance Agency find that each percentage point of lock-in reduces a mortgage-bearing homeowner's probability of executing a sale by 18 percent. Using real estate listings and transactions matched to a large sample of mortgages, Federal Reserve Bank of Atlanta economist Kristopher Gerardi, University of North Carolina assistant professor of finance Franklin Qian, and Rice University assistant professor of finance David Zhang find that lock-in reduces the probability of a sales listing by 21 to 23 percent. Even after listing, lock-in roughly doubles a property's time on the market. Using similar data, Aditya Aladangady, Jacob Krimmel, and Tess Scharlemann of the Federal Reserve Board of Governors find that lock-in reduces moving—although to a slightly more modest degree of about 15 percent when rate increases create a 3 percentage point lock-in, as has happened since 2022.

However, lock-in's effect on selling behavior is not uniform across all households, and the effect can change as lock-in deepens. Fonseca and Liu and Aladangady, Krimmel, and Scharlemann, for example, find that a marginal change in mortgage rates has a large effect when the homeowner is just crossing into lock-in but a smaller additional effect when lock-in is already substantial. Aladangady, Krimmel, and Scharlemann also note that intracity moves—which are more likely to be a change motivated by housing consumption than, say, job relocation—are more affected than intercity moves. And Gerardi, Qian, and Zhang argue that younger households are more sensitive to lock-in than older households, as the former tend to move more frequently on average.[2]

Mortgage Lock-In and the Housing Market

The combination of a low volume of sales and high price growth, as seen in the past few years, is historically rare. The housing market typically cycles through hot and cold phases, with periods of surging transactions and price growth followed by periods of fewer transactions and decelerating price growth. Mortgage lock-in is also historically rare, making it a probable cause of the currently atypical housing market. More directly, the line from lock-in to price increases seems a simple application of supply and demand: As the supply of homes for sale falls, prices will rise, all else being equal.

But everything else in the current housing market is not necessarily "equal." Rising mortgage rates have also depressed demand. And many sellers are also buyers. Indeed, the very language and logic of "lock-in" presupposes that potential sellers are reluctant to re-enter the market as buyers because they are unwilling to reset the terms of their mortgage. Hence, lock-in of sellers is also "locking out" potential buyers, meaning demand has shifted with supply. If lock-out suppresses demand enough, the buyer/seller ratio could remain steady or even decrease.

The effect of lock-in on moving propensity is directly measured from mortgage and transaction data. But since we cannot see the housing market in a counterfactual world with only seller lock-in and not buyer lock-out, researchers have turned to models of the housing market. Using these models, they can estimate the net effects of the rate increase on the buyer/seller ratio and prices. The findings to date show that, on balance, lock-in is making markets slightly tighter, with a modest to moderate effect on prices.

Using their estimates of sale probability and a model of housing tenure choice, Batzer, Coste, Doerner, and Seiler find that lock-in has prevented 1.7 million transactions and increased home prices by 7 percent. This, however, is an average effect across the entire market. Models with segmented markets—that is, with different types of homebuyers and sellers, and with the option to rent or own—account for the differential incentives the rate increase has had on, for example, young versus old households. Using these models, Gerardi, Qian, and Zhang and Fonseca, Liu, and INSEAD assistant professor of Finance Pierre Mabille find that, on net, lock-in has produced a small increase in prices because the exit of sellers from the market is only marginally offset by the decline in how much buyers are willing to pay for these homes.

Aladangady, Krimmel, and Scharlemann find that lock-in has produced price increases because of a "perfect storm" of circumstances beginning in 2022, though in general the effect of lock-in on prices is ambiguous. They use a model of housing search in which buyers and sellers meet in the market, and outcomes such as price and time to sale are fundamentally dependent on the ratio of buyers to sellers—that is, the "tightness" of the market. They find that whether seller lock-in increases prices depends on the degree of tightness. When markets are loose, lock-in's effect is small. But when markets are tight, a decline in the number of sellers matters a lot, so prices rise. They conclude that the historically tight conditions of the rate hike period led to an increase in prices. Specifically, what would have been an increase of 4.5 percent in looser markets is 11 percent in tighter markets.

There is little debate as to whether the rise in rates and concomitant lock-in has led to fewer transactions. There is clearly a reduction in both sides of the market—that is, a reduction in both the number of buyers and the number of sellers. But even if lock-in did not increase prices, the reduction in transactions could decrease the welfare of prospective buyers. Fewer sellers means a limited menu of homes for sale. With fewer choices, buyers may settle on a worse match than they might have otherwise found if more homes had been listed for sale.

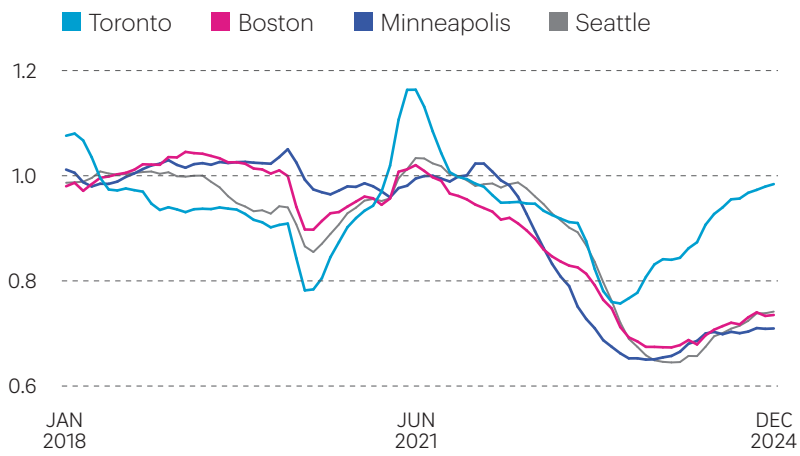
Moreover, these effects may not be equally distributed, a point emphasized by Gerardi, Qian, and Zhang. A homeowner of a large, expensive property may be indifferent between a slightly better match and their current match. But a homeowner of a smaller, less expensive property looking to move up to a larger one now has two challenges: New borrowing is more expensive, and their desired next house is being held off the market by a locked-in owner. Their model shows that buyers in lower-income census tracts would see more welfare gain in a world without lock-in.

FIGURE 3

The Toronto Market Is Similar to Many Tight U.S. Housing Markets

But in Canada most mortgages have an adjustable rate, and Toronto saw a recovery in listings even as mortgage rates rose.

Properties listed for sale, index of 12-month cumulative count, 2018–2024



Data Sources: Toronto Regional Real Estate Board; Multiple Listing Service via CoreLogic

How Policymakers Can Respond to Lock-In

The fastest way to end mortgage lock-in is for mortgage rates to fall. Although a return to rates below 3 percent is unlikely, Batzer, Coste, Doerner, and Seiler suggest that even a moderate decline in mortgage rates would have a discernible effect. Mortgage rates, however, are largely affected by monetary policy, and policymakers are more focused on price stability and full employment than a peculiar outcome in the housing market. So, the unwinding of lock-in will likely come about through normal housing market turnover—that is, through changes in family status, jobs, health, and so on. Thanks to this turnover, most new and existing mortgages will eventually converge to the market rate. But this unwinding will take time to run its course—and extra time because the rate at which people move is dampened by lock-in.

New construction could speed this process. Only a home with a current occupant can be locked in. New construction should ease the housing market by matching homeowners with new units, which would bring more mortgages in line with prevailing rates. Furthermore, the housing market has for some time been characterized by a low building rate (especially in expensive areas), which has led to a historic demand/supply imbalance and a shortage of affordable housing. Therefore, public policies that address the housing shortage may also help unravel lock-in.

Reforms to the mortgage market could also alleviate lock-in and prevent it from happening in the future. As described earlier, lock-in is the result of rising rates combined with long-term FRMs tied to a borrower/property match. Making any of these institutional attributes more flexible could deter future lock-in. For example, if more mortgages had an adjustable rate instead of a fixed rate, then homeowners' average mortgage rate would be close to the market rate, regardless of when the mortgage contract was signed. Gerardi, Qian, and Zhang point to the example of the Toronto market, which is similar to many tight U.S. housing markets, except that in Canada most mortgages have an adjustable rate. And Toronto, they note, did not see an increase in market tightness when mortgage rates rose (Figure 3).

More mortgages could be made assumable or portable. In their evaluation of these two options, Batzer, Coste, Doerner, and Seiler argue that mortgage lenders are more likely to accept portability than assumability because when mortgages are portable, only the asset backing the debt—rather than the borrower—changes, and they can assess the value of those assets reasonably well. Portability would also alleviate the moving and selling disincentives that appear to be the most problematic elements of lock-in. But a portable mortgage would have to be repriced relative to a nonportable contract, with the new price reflecting the extra option afforded the borrower (portability to a new home) and the change in expected duration for the lender (expected time to repayment). If there is a gap in acceptable prices between borrowers and lenders, there may be no functioning market for portable mortgages.

Any of these reforms would likely require widespread changes to the mortgage financing model in the United States, where capital market investors finance mortgages by buying them as securities. The U.S. government, long interested in promoting home ownership, has influence in this space through the government-sponsored enterprises (such as Fannie Mae and Freddie Mac) that facilitate the securitization of mortgages.[3] However, major reforms can be difficult to execute, as they require a widespread rewriting of rules and changes to longstanding institutions and habits.

A more modest reform would follow the Danish model, which also features long-term FRMs and capital market financing. When rates rise, investors would like to offload their older, low-rate mortgages. In Denmark a homeowner can buy back their own mortgage from the securitization pool at a significant discount.[4] This allows the investor to sell the old mortgage and the current homeowner to reap a discount from the purchase of the old mortgage. The buyback discount ameliorates the financial disincentive of moving, which allows homeowners to search freely without lock-in. This modest reform could promote flexibility in the housing market without upsetting the entire mortgage finance system.

How Lock-in Affects Other Economic Outcomes

Because homeownership and residential location are linked, the effect on the housing market could spill over into a regional economy. Fonseca and Liu (2024) argue that mortgage lock-in, through its disincentive to move, has prevented workers from relocating to new labor markets for better jobs. In this way, lock-in could have macroeconomic implications for business cycles and aggregate growth. However, this finding has been challenged by subsequent work. Using a different statistical model, Liebersohn and Rothstein (2025) find that long-distance moves (between states) were less affected by lock-in than local moves (between zip codes). Similarly, Aladangady, Krimmel, and Scharlemann (2025), armed with more geographically detailed data, argue that moves between cities were less affected by lock-in than moves within cities. More importantly, they find, buyers may opt for lower-value homes to afford the new mortgage rate. Overall, the largest effect they find is on total transactions. The findings of both of these studies suggest that lock-in has a limited effect on labor misallocation.

According to other studies, high mortgage rates for owner-occupied homes also have a spillover effect on the rental market. De la Roca, Giacoletti, and Liu (2025) find that Los Angeles neighborhoods with more locked-in starter homes show a greater increase in advertised rents, a pattern they attribute to demand spillovers—that is, rental demand increases when renter households cannot transition to homeownership. Using a nationally representative rental listings data set, Abramson, De Llanos, and Han (2025) also find that higher interest rates lead to higher rental prices, although they attribute this increase to the substitution from owner-occupancy to rental demand and not necessarily to the mortgage lock-in of existing owners. They further show that, when owner-occupant transactions decline, real estate investors move into the market and buy properties as rentals.

Notes

1 See Ahmad and Elul (2024).

2 However, they also find that different demographic groups experience a similar proportional effect on moving.

3 For more discussion of the promotion of homeownership in the United States, see Li and Yang (2010).

4 Denmark and the United States are alike in that much of their mortgage financing is provided through capital markets, not deposits. Thus, financial institutions can originate long-term mortgages without having to do "maturity transformation" from short-term deposits into long-term lending contracts. Borrowers, presumably liking the certainty that FRMs provide, tend to select them when both adjustable-rate mortgages and FRMs are available. See Berg, Nielsen, and Vickery (2018).

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