

## The Homeownership Gap

*Andrew Haughwout, Richard Peach, and Joseph Tracy*

*Recent years have seen a sharp rise in the number of negative equity homeowners—those who owe more on their mortgages than their houses are worth. These homeowners are included in the official homeownership rate computed by the Census Bureau, but the savings they must amass to retain their home or purchase a new home are daunting. Recognizing that these homeowners are likely to convert to renters over time, the authors of this analysis calculate an “effective” rate of homeownership that excludes negative equity households. They argue that the effective rate—5.6 percentage points below the official rate—may be a useful guide to the future path of the official rate.*

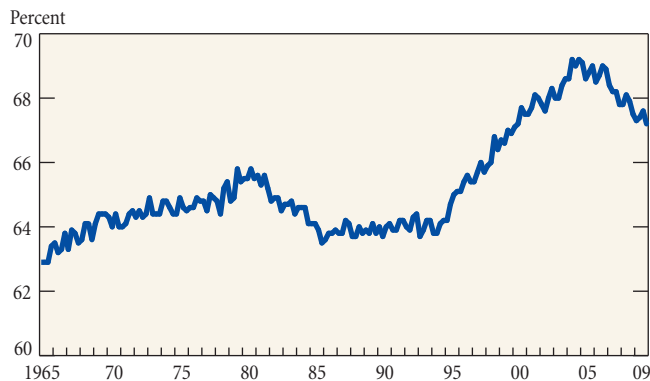
**H**omeownership is often seen as an integral part of the American dream, and encouraging homeownership has historically been an important feature of U.S. public policy. In 1995, the rate of homeownership in the United States began a steep rise and between 2004 and 2006, peaked at 69 percent (Chart 1).<sup>1</sup> The last three years, however, have seen a marked reversal of this trend. As the housing boom collapsed and the recession fueled a sharp rise in unemployment, the homeownership rate fell to 67.2 percent in the fourth quarter of 2009—its most recent reading and a reversion to its second-quarter 2000 level. Strikingly, the ongoing decline in the homeownership rate is approaching in magnitude the 2.3 percentage point slide observed in the early 1980s.

A question of broad interest is how large the decline in the homeownership rate will ultimately prove to be. In this edition of *Current Issues*, we assess the downward pressure on this rate and introduce the notion of a “homeownership gap” as a useful gauge of the possible extent of the rate’s decline over the next several years.

Our concept of a homeownership gap reflects the dramatic growth in the number of negative equity homeowners—those who owe more on their mortgages than their houses are worth—in the current housing market. While the official homeownership rate tabulated by the Census Bureau includes negative equity homeowners in its count of owner-occupied houses, our calculations suggest that these homeowners would need to ramp up their savings by formidable amounts in order to retain their homes or purchase a new home. Thus, we calculate an “effective” homeownership rate that excludes negative equity homeowners from the sum of owner-occupied houses and counts them instead as the renters they are likely to become over time. We find that the difference between the official and the effective rates—the homeownership gap—

<sup>1</sup> The U.S. Bureau of the Census tabulates quarterly homeownership rates for the nation and for individual states and metropolitan statistical areas. The measured home ownership rate is the ratio of the number of owner-occupied housing units divided by the total number of occupied housing units. Second homes and vacation homes are excluded from the calculation. In addition, properties that are currently vacant—even if previously owned or rented—are also excluded. See <http://www.census.gov/hhes/www/housing/hvs/annual08/ann08ind.html>.

Chart 1

**Aggregate Official Homeownership Rate**

Source: U.S. Bureau of the Census, Housing and Economic Statistics Division.

is significant, measuring 5.6 percentage points for the nation as a whole and rising as high as 39 percentage points for the metropolitan areas that have been hit hardest by the housing crisis. While such gaps have most likely existed before at the regional level, the current national gap has no apparent precedent in the postwar period.<sup>2</sup>

Taking our argument one step further, we contend that the current effective homeownership rate is a good guide to the future path of the official rate. That is, unless house prices increase substantially, many negative equity homeowners will in fact convert to renters in the years ahead, and the measured rate of homeownership will decline toward the effective rate.

We begin our analysis with a look at government initiatives to encourage homeownership, followed by a discussion of the rationale for this support. If homeownership rates do indeed decline in the coming years as we suggest, then the larger social benefits that arise when individuals have an equity stake in their homes and communities may be reduced.

**Homeownership and Public Policy**

Since at least as far back as President Roosevelt's New Deal, governments at the federal, state, and local levels have enacted policies to encourage people to become and remain homeowners. In response to the surge in mortgage foreclosures during the Great Depression, the government created the Federal Housing Administration (FHA) and the Federal National Mortgage Association (FNMA, or Fannie Mae) to establish a standard mortgage product—the thirty-year fixed-rate, fully amortizing mortgage—that would allow borrowers to make modest fixed payments over an extended period. Moreover, the FHA insured these mortgages, thus limiting expected losses for investors. During the same

<sup>2</sup> The gap is analogous in some ways to the developing country “debt overhang” problem, which received extensive analysis in the late 1980s. See Sachs (1990) for a discussion.

period, the government chartered a new financial institution devoted to providing mortgage credit—the thrift—and created the Federal Home Loan Bank System as a funding source that would help thrift institutions manage the problems associated with making fixed-rate loans scheduled to last for decades. After World War II, the GI Bill established the Veterans Administration (VA) mortgage program to provide veterans with high loan-to-value mortgage loans insured by the federal government.

In the late 1960s and early 1970s, as thrift institutions came under stress from rising inflation, the government played a central role in the creation of the market for mortgage-backed securities. The Government National Mortgage Association began issuing federally guaranteed mortgage pass-through securities backed by FHA and VA loans in 1970. Soon after, the Federal Home Loan Mortgage Corporation (Freddie Mac) started issuing mortgage participation certificates backed by conventional mortgages. Ultimately, the securitization of the bulk of new mortgage loans fell to the government-sponsored enterprises Fannie Mae and Freddie Mac, largely because of the implicit federal guarantee on the mortgage-backed securities and debt issued by these institutions.<sup>3</sup>

The tax code is another channel through which homeownership is encouraged. For homeowners, the gross imputed income from their home is not subject to taxation while the two major expenses of owning a home—mortgage interest and property taxes—are allowable itemized deductions. Moreover, most homeowners are now effectively exempt from taxes on capital gains realized on the sale of their home(s). Another feature of the tax code intended to spur homeownership is the ability of state and local governments to issue tax-exempt mortgage revenue bonds.

**The Benefits of Homeownership**

The case for government support for homeownership rests in large part on the view that ownership promotes “economically efficient” actions—actions that produce the greatest return for the resources invested. Because owners have a financial interest in their property, they have incentives to take measures that will maintain or increase the value of that property. Some of these measures—such as fixing a leaky roof—are closely related to the house itself. Others, such as investing resources in the betterment of the neighborhood and the community, have broader beneficial effects on the local area, creating what economists call “positive externalities.” All of these measures will be reflected, or “capitalized,” in stable or rising home prices.

The notion that these capitalization effects prompt homeowners to act in the best interest of the property and the community underlies the “homevoter hypothesis” advanced by William Fischel (2001). Asserting a close connection between homeownership and civic engagement (hence the term “homevoter”), Fischel argues that homeowners take an active interest in the policy decisions of the local government because these decisions affect the long-term value of their property. Homeowners will support

<sup>3</sup> See McCarthy and Peach (2002).

efficient public policies and projects—say, those that do the most to enhance the quality of the services and schools in their communities and thus to maximize the value of their homes—in much the same way that a corporation’s shareholders will support private projects that have a positive net present value for the firm.

However, the incentives that, in this view, motivate most homeowners will not operate for one subset of homeowners—negative equity homeowners, or those whose mortgage balance exceeds the value of their home. For these homeowners, any increase in the value of their house will accrue not to them, but to the mortgage lender (up to the value of the mortgage). Thus, with little to gain, negative equity homeowners will be much less likely to pursue improvements in their homes or communities. Their situation is essentially analogous to that of renters, who have little incentive to make improvements to the homes they occupy since it is the landlord who reaps the economic benefits.

The homevoter hypothesis is compelling, but is there evidence for the view that house price capitalization induces homeowners to act in the best interests of the property and the community? Researchers have documented that homeowners typically spend several thousand dollars a year in maintenance and repairs to offset the depreciation of their house over time (Gyourko and Tracy 2006; Harding, Sirmans, and Rosenthal 2007). Conversely, negative equity homeowners have been found to *under-maintain* their property relative to other homeowners during regional house price declines (Gyourko and Saiz 2004). Also consistent with the homevoter hypothesis are studies showing that elderly homeowners who have no school-age children still support local education bond issues. While altruism may be a factor, the homeowners appear to be motivated mostly by a belief that backing local schools will increase the value of their house (Bergstrom, Rubinfeld, and Shapiro 1982; Hilber and Mayer 2009). Other research has demonstrated that children of homeowners are more likely to finish school than the children of renters and less likely to become teenaged parents (Green and White 1997). Finally, homeowners have been found to vote at higher rates in local elections and to be more aware of local issues and the identities of state and local civic leaders (DiPasquale and Glaeser 1999).<sup>4</sup>

To be sure, not all researchers are persuaded that homeownership leads to increased civic engagement or improved maintenance of homes and neighborhoods. Engelhardt et al. (2010) maintain that the measured benefits from homeownership stem from the fact that people who choose to buy homes are simply more likely than others to value investing in social capital. Contending that the homevoter hypothesis and similar arguments “overstate the impact of homeownership on political involvement,” the authors find that for the small sample of low-income households in their study, the effect is “zero or negative.”

<sup>4</sup> Recognition that property ownership carries with it particular interests is as old as the republic itself. In Federalist 10, James Madison writes, “Those who hold and those who are without property have ever formed distinct interests in society. Those who are creditors, and those who are debtors, fall under a like discrimination.”

Still, although dissenting views exist, the preponderance of research evidence at this point upholds the social benefits of homeownership. And continuing public support for homeownership makes clear that policymakers regard the advantages for neighborhoods and communities as substantial.

### *Equity and the Homeownership Gap*

The role of house price capitalization in encouraging homeowners to support economically efficient actions depends on the homeowner having positive equity in the house. For a homeowner in a negative equity position, this capitalization effect is likely small or nonexistent. If we assume that the homeowner will seek to move within five years,<sup>5</sup> then unless that homeowner either expects to be back in positive equity by the time of the move or intends to use other assets to pay off the loan in full upon sale of the property, changes in the value of the house will only affect returns to the lender (or the investor, if the mortgage has been securitized).<sup>6</sup>

The idea that having a positive equity stake in one’s house is critical to the positive externalities from homeownership leads us to propose an alternative way to measure the homeownership rate. Specifically, we seek to calculate an *effective* homeownership rate, defined as the number of owner-occupied housing units in which the household has a positive equity stake divided by the total number of occupied housing units.<sup>7</sup> This measure of homeownership assumes that negative equity owners are, in effect, renters—hence the notion of an effective homeownership rate. Owners with negative equity create a split between the official homeownership rate compiled by the Census Bureau and the effective homeownership rate—a split that we term the homeownership gap.

Since the homeownership gap reflects the extent of negative equity in the housing market, it is also a gauge of the potential downward pressure on the official homeownership rate. Assuming that house prices do not appreciate over the next several years, negative equity households will very likely convert to renters when they move out of their current homes because they will be unable to save enough to cover the negative equity, the transaction costs of selling their existing home, and a down payment on another home.<sup>8</sup> As these transitions from owning to renting take place, the homeownership gap will narrow, with the

<sup>5</sup> According to the most recent U.S. census, nearly half (47 percent) of all homeowners moved in the last five years.

<sup>6</sup> The extent to which the capitalization effect is shut off may be a function of the magnitude of the negative equity position.

<sup>7</sup> Thus, we remove negative equity homeowners from the numerator of the official homeownership ratio but retain them in the denominator.

<sup>8</sup> If the homeowner either defaults on the mortgage or negotiates a short-sale with the lender, then the damage to the homeowner’s credit will likely prevent him or her from buying a house for several years, even if sufficient funds are available for a down payment.

Table 1

**Number of Months Required for Debt Amortization to Lower the LTV Ratio to 94**

Current LTV	Percentiles				
	10th	25th	50th	75th	90th
> 100	69	99	145	198	242
> 105	95	120	161	208	249
> 110	114	137	174	216	256

Note: Calculations assume constant house prices.

official homeownership rate dropping toward the effective rate.<sup>9</sup> In this sense, the effective homeownership rate is a useful guide to the future course of the measured homeownership rate. Of course, negative equity homes that come onto the market may be purchased by individuals who are currently renters—an outcome that would mitigate the effect on the official homeownership rate. However, the number of foreclosed houses purchased by former renters is likely to be limited.

*Measuring the Extent of Negative Equity*

To construct the effective homeownership rate, we need to estimate the extent of negative equity across local housing markets. We start with loan-level data on nonprime mortgages from First America LoanPerformance (LP) and on prime mortgages from Lender Processing Services (LPS) Applied Analytics (formerly McDash). These data indicate the loan-to-value (LTV) ratio for each mortgage at origination.<sup>10</sup> We update the loan-to-value ratio by adjusting the loan amount(s) to account for debt amortization—the reduction in mortgage balances that accompanies scheduled payments—and to reflect changes in the value of the house as indicated by a repeat-sale price index for the metropolitan statistical area (MSA) or, if the property is located outside an MSA, for the state.<sup>11</sup> The house price data are updated quarterly, allowing us to construct a quarterly estimate of the current LTV ratio for every mortgage in our data. We restrict our equity calculations to owner-occupied primary residences since these are the homes captured in the numerator of the Census Bureau’s homeownership rate.

Having constructed the estimates of LTV ratios, we need to specify the level of the current LTV ratio that is associated with

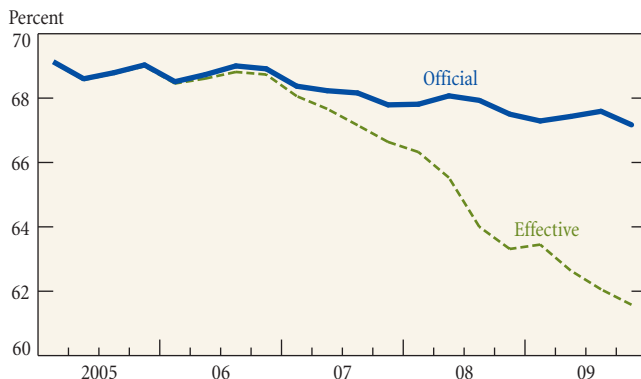
<sup>9</sup> Public policy initiatives such as mortgage modification and the tax credit for first-time home buyers can affect the speed of the decline in the official rate.

<sup>10</sup> The LTV ratio is measured as the cumulative value of the mortgage balance across the first lien and any subordinate lien mortgages divided by the value of the house. We capture subordinate liens for nonprime mortgages exclusively and only if the lien was present at the origination of the first lien. If the value of the mortgage(s) equals the value of the house, we set the LTV to equal 100 (rather than a value of 1).

<sup>11</sup> We use the Office of Federal Housing Enterprise Oversight/Federal Housing Finance Agency (OFHEO/FHFA) repeat-sale price indexes. A widely cited alternative set of repeat-sale price indexes, discussed later in the article, are the S&P/Case-Shiller indexes, which are available for only twenty MSAs.

Chart 2

**Aggregate Official and Effective Homeownership Rates**



Sources: U.S. Bureau of the Census; LPS Applied Analytics and LP data; authors’ calculations.

an owner behaving more like a renter. By convention, a mortgage is judged to be in negative equity if the current LTV exceeds 100, but a key consideration is the value of the current LTV that would allow a household to break even when it eventually sells its home. Therefore, some additional factors need to be taken into account.

First, we need to consider the transaction costs involved in selling a house.<sup>12</sup> If we assume that these costs amount to 6 percent of the sale price, then the LTV *at the date of the sale* would need to be no higher than 94 for the household to break even on the sale. Second, for mortgages whose current LTV is above 94, we need to assess how long it would take to bring the ratio down to 94 through scheduled debt amortization, assuming no further net changes in the price of the home.<sup>13</sup> Our findings are presented in Table 1, which divides the negative equity mortgages in our data into percentiles on the basis of the number of months that would be required to bring the LTV down to 94. The distribution reflects both the differing magnitudes of negative equity and the remaining payment periods for mortgages in our data. Of the mortgages whose current LTV is greater than 100, 90 percent would take longer than five years to reach an LTV of 94 through the scheduled debt pay-down process. The median mortgage in this group would take more than twelve years to reach an LTV of 94. If we look at mortgages with even higher current LTVs, the length of time required to reach the break-even point would increase quite significantly.

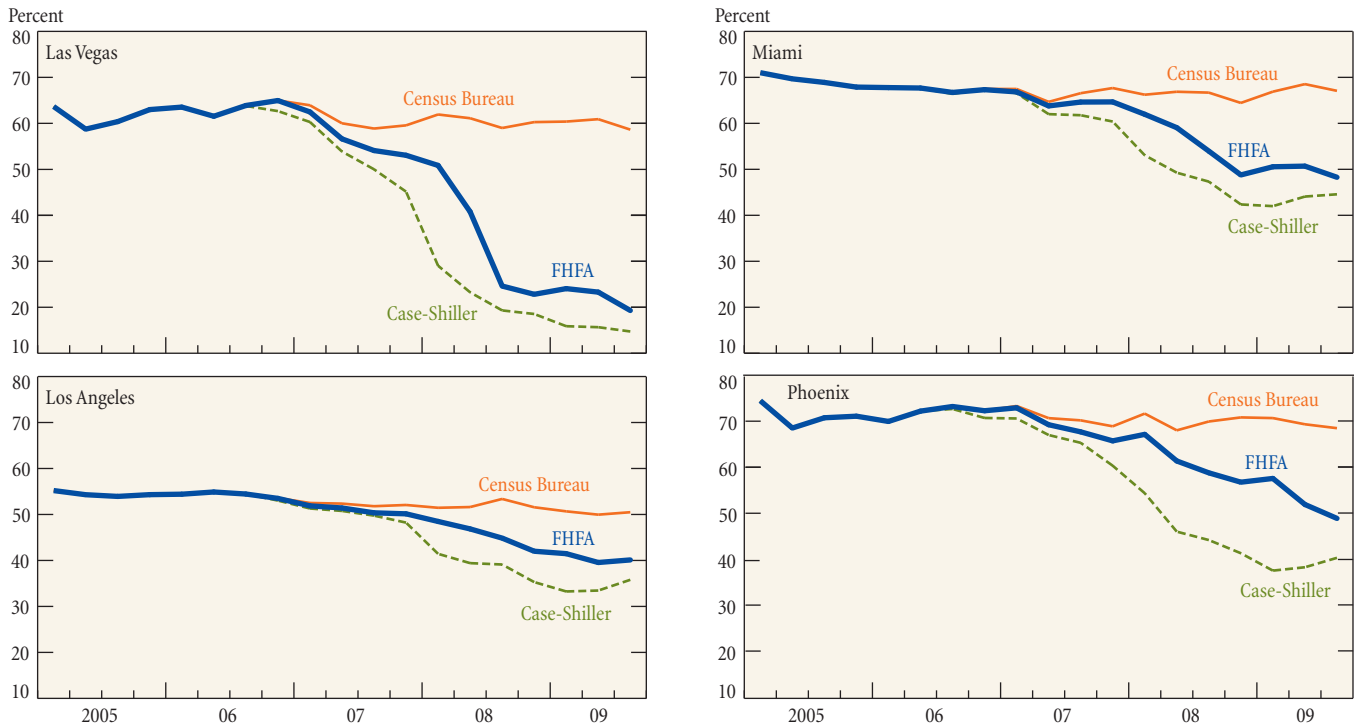
For the purpose of constructing our alternative homeownership rate, we conclude that the incentives to behave like an owner are very weak if the benefits from this behavior require living in the house for more than five years. Thus, we identify a current LTV of 100—that is, the standard definition of negative equity—as our marker for households that are likely to behave more as

<sup>12</sup> These include the fees to brokers as well as taxes and transfer fees.

<sup>13</sup> This is consistent with house prices continuing to decline over the next year but then recovering by the sale date.

Chart 3

### Official and Effective Homeownership Rates: Metropolitan Statistical Areas Hit Hard by Volatile House Prices



Sources: U.S. Bureau of the Census, Current Population Survey; LPS Applied Analytics and LP data; authors' calculations.

Note: The FHFA (Federal Housing Finance Agency) and Case-Shiller rates are effective rates.

renters than owners. Using this definition, we calculate quarterly estimates of the number of owner-occupied prime residences in negative equity over the period from the first quarter of 2005 to the first quarter of 2009. We then subtract these negative equity households from the quarterly counts of owner-occupied housing units in the official homeownership rate to arrive at the aggregate effective homeownership rate over the same four-year period.

The effective rate that we compute follows a very different path than the official homeownership rate (Chart 2). The effective rate begins to diverge from the official rate in 2006. This homeownership gap widens in 2007 as the pace of the house price decline accelerates, pulling more households into negative equity. By the end of fourth-quarter 2009, the effective homeownership rate has fallen to 61.6 percent, creating a homeownership gap of 5.6 percentage points.

Significantly, the homeownership gap in Chart 2 may *understate* the true gap for two reasons. First, the price indexes that we use to calculate the updated LTVs—repeat-sale indexes put out by the Office of Federal Housing Enterprise Oversight (OFHEO) and the Federal Housing Finance Agency (FHFA), hereafter termed the FHFA indexes—have declined considerably less from their recent peaks than have competing home price indexes. The methodology

used by FHFA to construct these price indexes involves measuring price changes for houses financed with prime, conforming mortgages purchased by Fannie Mae and Freddie Mac at two or more points in time. However, in many metropolitan areas in the weakest housing markets, nonprime mortgages became much more prevalent in the first half of this decade, while more recently foreclosures have emerged as an important component of overall housing transactions. In contrast to the FHFA indexes, the S&P/Case-Shiller (hereafter Case-Shiller) repeat-sale price indexes cover homes financed with nonprime as well as prime loans and cover most foreclosure sales.<sup>14</sup> The second reason that our estimate may understate the homeownership gap is that the coverage of subordinate liens in our database is most likely incomplete, since it excludes all subordinate liens on prime mortgages and some subordinate liens on nonprime mortgages.<sup>15</sup>

The gap between the official and effective homeownership rates is even more striking when we turn our attention from the nation to metropolitan areas that experienced a severe collapse in housing prices (Chart 3). Measured from the FHFA indexes, the

<sup>14</sup> Specifically, the Case-Shiller methodology includes all “arms-length” housing transactions.

<sup>15</sup> See footnote 10.

Table 2

**Official and Effective Homeownership Rates for Large Metropolitan Statistical Areas**

MSA	Official Homeownership Rate (Percent)		Effective Homeownership Rate (Percent)		Homeownership Gap (Percentage Points)	
	Peak	Current	FHFA	Case-Shiller	FHFA	Case-Shiller
Atlanta	70.8	66.4	61.3	57.4	5.1	9.0
Boston	67.7	66.5	64.2	64.3	2.3	2.3
Charlotte	69.1	68.0	66.9	63.2	1.1	4.8
Chicago	71.3	69.5	64.2	61.6	5.3	7.9
Cleveland	78.6	74.2	71.4	69.8	2.8	4.4
Dallas	64.5	62.8	62.4	61.6	0.4	1.2
Denver	72.0	63.3	60.8	59.8	2.4	3.5
Detroit	78.4	75.2	59.1	48.9	16.1	26.3
Las Vegas	65.0	58.6	19.3	14.7	39.3	43.9
Los Angeles	55.2	50.5	40.1	35.8	10.4	14.7
Miami	71.0	67.1	48.3	44.6	18.8	22.5
Minneapolis	74.8	71.2	64.1	56.5	7.0	14.6
New York	55.9	51.2	48.7	47.5	2.5	3.7
Phoenix	74.7	68.8	49.1	40.6	19.6	28.2
Portland	72.7	67.6	63.3	61.9	4.4	5.7
San Diego	63.3	55.3	39.3	35.0	16.0	20.3
San Francisco	61.7	58.3	49.1	43.4	9.2	14.9
Seattle	65.7	60.8	55.8	53.4	5.0	7.4
Tampa	74.1	67.6	56.1	51.2	11.4	16.3
Washington, D.C.	70.9	66.5	58.8	52.3	7.7	14.2

Sources: U.S. Bureau of the Census, Current Population Survey; LPS Applied Analytics and LP data; authors' calculations as of 2009:Q3.

effective homeownership rates for Los Angeles, Miami, Phoenix, and Las Vegas ranged from 10 to 39 percentage points below the corresponding official rates in the third quarter of 2009. The smallest homeownership gap—that for Los Angeles—was almost *double* the size of the homeownership gap for the country as a whole. Moreover, like the estimates of the national homeownership gap, these metro area estimates might understate the difference between the official and effective rates. As Chart 3 makes clear, the MSA homeownership gaps calculated from the Case-Shiller house price indexes are much larger than those produced using the FHFA house price indexes.

Significantly, very large homeownership gaps are not confined to just a few metro areas. The effective homeownership rates for half of the metro areas covered in the Case-Shiller indexes are at least 10 percentage points below the corresponding Census Bureau homeownership rates (Table 2).

### *Implications of the Homeownership Gap*

Earlier in this article, we suggested that homeownership gives individuals a financial stake in the long-run outlook for their homes and communities. If this is the case, then the homeowner-

ship gaps that we have documented for the nation and some metro areas may have significant implications for civic welfare.

Consider, for example, that the Case-Shiller-based effective homeownership rates for the four metro areas shown in Chart 3 and for Detroit, New York City, San Diego, and San Francisco (Table 2) are all under 50 percent. That is, the median household in these areas is in a negative equity position and no longer has strong financial incentives to behave as an owner. While the effects will vary with the distribution of negative equity households across the municipalities within these metro areas, a high share of these households could result in reduced maintenance of the housing stock, an increased risk of housing vacancies, and less stable neighborhoods over time—developments that could have repercussions for local law enforcement.<sup>16</sup> Moreover, the predominance of “non-homeowners” in these metropolitan areas could lead to a decline in citizen participation in local affairs, with a concomitant loss of vigilance over the quality and efficiency of public services and institutions.

<sup>16</sup> See for example Millman (2009).

Table 3

### Savings Required to Remain an Owner If Moving in Five Years

	Monthly Savings per Household (Dollars)	Total Annual Savings (Billions of Dollars)
All borrowers with LTV > 100	1,222	92.3
Borrowers with 100 < LTV < 111	602	22.7

Sources: LPS Applied Analytics and LP data; authors' calculations as of 2009:Q4.

Note: The total annual savings are for the full sample of negative equity households.

The large homeownership gaps that have emerged during this housing market crisis will likely have significant effects on the macroeconomy as well. One possible consequence is an increase in the national saving rate. Homeowners seeking to escape a negative equity mortgage and purchase a new residence will need to make a substantial commitment to save. They must remain current on their mortgage payments and pay off any remaining negative equity balances upon the sale of their current home. In addition, they will need to provide cash to cover the down payment on a new home as well as the transaction costs of the purchase. Given the large number of households currently in negative equity, a broad-based movement among these households to increase saving would have the potential to boost the nation's savings significantly.

To shed light on the magnitude of this increase, we estimate how much the negative equity households in our sample would need to save in order to close out their existing mortgage and buy a new home. The amount will depend, of course, on the value of each household's current and prospective homes, the lending standards in effect at the time the household moves, and the cost of the transaction. For our analysis, we assume that the household's "desired" down payment equals 20 percent of the current value of its existing house,<sup>17</sup> and that transaction costs total 6 percent of that value.

Note that even absent any house price appreciation, homeowners who remain current on their mortgage payments build their equity position through debt amortization. For each negative equity homeowner in our sample, we can project the reductions in debt balances that result from making the scheduled payments for a given period of time, and then incorporate these reductions in our analysis. Of the households that continue to make payments, more than a third (36 percent) will assume a positive equity position within three years, and more than half (51 percent) within five years.<sup>18</sup> For these borrowers, housing equity could serve as part of a down payment on a new home.

<sup>17</sup> Our assumption would allow the household to purchase a residence of equivalent value under the current tight lending standards. Since a new home could be more expensive, this is a conservative assumption.

<sup>18</sup> Of course, house price appreciation would hasten this process of equity gains, while continued price declines would slow it.

By contrast, households whose regular debt amortization will not reduce the mortgage balance sufficiently will need to save enough to pay off the current mortgage before buying again.

Table 3 reports the net savings required for the average negative equity household in our sample to buy a new home in five years. Again, these figures represent the sum of the amounts required to make a new down payment, pay all transaction costs, and pay off (or receive) the difference between the current house price and the mortgage balance at the time of sale. Even accounting for the benefits of debt amortization on the borrower's equity position, we find that the typical household must save more than \$1,200 more per month if it wishes to buy again in five years. (For a detailed example of the calculations underlying Table 3, see the appendix.) Because we estimate that more than 6 million households are in negative equity, these figures imply an annual savings increase for the nation of \$92 billion for five years. Personal saving as defined in the National Income and Product Accounts averaged roughly \$465 billion during 2009, yielding an average personal saving rate of 4.3 percent. All else equal, we calculate that for these borrowers to remain homeowners under our assumptions, personal saving must rise about 20 percent a year for five years. The personal saving rate would have to rise about 0.8 percentage points, to 5.1 percent.

Since the savings required are so large at both the household and aggregate level, it seems unlikely that all of today's negative equity households will be able to remain owners unless they defer moving for several years. The second row of Table 3 reports similar figures for the "better" half of the negative equity distribution—that is, homeowners with LTVs below 111, whose chances of remaining owners seem more realistic. Even here, however, the average monthly saving requirement, at \$602, is quite large.

Another implication of the homeownership gap for the larger economy is that household mobility is likely to be significantly reduced. Negative equity households that are saving for a new down payment need to delay a move during the period they are rebuilding their savings. Studies of past regional housing cycles suggest that household mobility may fall by as much as a third for households in a negative equity position.<sup>19</sup> Recent Census Bureau data confirm the downward trend in mobility, putting the number of households moving at its lowest level since the 1960s. While many factors are likely weighing on household mobility now, the prevalence of negative housing equity is surely high on the list.

It is hard to predict with much precision how the homeownership gap will ultimately affect measured homeownership, savings, and mobility. Our analysis suggests that either savings must rise and mobility must fall or, more likely, the official homeownership rate will decline toward the effective rate, narrowing the homeownership gap.

<sup>19</sup> See, for example, Ferreira, Gyourko, and Tracy (2008).

## Conclusion

The severe decline in house prices in the last few years, combined with the large number of borrowers who had little or no equity at the origination of their mortgages, has led to a dramatic rise in homeowners with negative equity. This rise in turn has opened a large gap between the Census Bureau's official homeownership rate and a measure that we term the effective rate. The effective rate recognizes that negative equity homeowners are likely to convert to renters over time and thus excludes them from the count of owner-occupied housing. The effective homeownership rate for the nation is currently 5.6 percentage points below the Census Bureau rate, and in some of the metropolitan areas hurt most by the housing crisis, the effective homeownership rate falls short of the official rate by a striking 20 to 39 percentage points.

Public policy has long promoted homeownership, and subsidies for owner-occupants are a key feature of the tax code. But these recent developments present many challenges to policymakers. Absent any action, the high saving requirements for remaining an owner make it likely that the current effective homeownership rate will foreshadow the future official rate. A drop in the homeownership rate may create a large set of residents who are less invested in the long-run outlook for their homes and communities—an outcome that could lead to lower

levels of home maintenance and civic participation, as well as more short-sighted decisions in local affairs. While the national saving rate may well rise as negative equity households who prefer to own their own home try to save up a down payment on a new house, the task of setting aside sufficient funds will be daunting for these households.

Public policy initiatives such as mortgage modification can help to support the homeownership rate by reducing foreclosures and easing conditions for negative equity borrowers to save for a future down payment. However, the efficacy of these modification programs depends in part on their structure. Programs that encourage principal write-down will do more to support the homeownership rate than those that focus solely on the monthly mortgage burden to the borrower, and will allow maintenance of homeownership without producing steep declines in consumption.<sup>20</sup> Addressing the problems of negative equity and low effective homeownership rates is most important for those metropolitan areas that suffered the worst house price declines. The current large homeownership gaps in these housing markets will make it especially difficult to maintain the broader social benefits that stem from a high homeownership rate.

<sup>20</sup> See the comparison of mortgage modification programs in the appendix.



## Appendix: When Negative Equity Mortgage Holders Save for a New Home

*For negative equity mortgage holders, remaining a homeowner requires a substantial saving commitment, but mortgage modifications—particularly those that reduce the principal balance—can help.*

Negative equity borrowers who want to remain owners but already have difficulty meeting their mortgage payments may find that saving for a down payment on a new home is not feasible. Mortgage modification programs can assist these households, to a degree, by reducing the required monthly mortgage payment, thus freeing up funds that can be saved for a new down payment. But the structure of the modification program is important. Modifications that reduce interest rates alone will lower the monthly payment, while those that also reduce principal balances lower the monthly costs and provide for additional saving through debt reduction.

For example, consider a household whose home is currently worth \$181,818 (see the first column in the top panel of the appendix table). The household has a nonprime thirty-year fixed-rate mortgage at a 7 percent interest rate that was originated two and a half years ago, and has a current balance of \$200,000.<sup>1</sup> The household's monthly income is \$4,474. The required monthly mortgage payment is \$1,367, and the monthly taxes and insurance are \$333. This gives the household a fairly high ratio of debt service to income (DTI) of 38 percent, so this household is financially stretched in its current mortgage.

Now assume that the household would like to buy a new home in five years and that the value of its current house will not change over this period. To be able to make a 20 percent down payment on a new house of equivalent value, the household needs to accumulate \$36,364. The household also anticipates that the sale of its existing home will entail a 6 percent transaction cost, or \$10,909. The household is currently in a negative equity position of \$18,182; five years of payments on the original mortgage will reduce its negative equity to \$3,823. To be able to sell the house, pay off its mortgage, and make a down payment on a new house, the household must accumulate \$51,096 in savings.

Assuming that the household tries to save this amount over a five-year period and that it earns 1.6 percent on its savings, it would have to set aside an additional \$819 per month. This additional claim on the household's income would raise

its DTI to 56 percent—a level that would necessitate a significant reduction in consumption and is likely to be unsustainable. Even if the household is not straining to meet its current mortgage payments (if, say, it has a DTI of 28 percent rather than 38 percent), saving to remain a buyer would push its DTI to a high level (46 percent).<sup>2</sup>

Now, consider the benefit to the household if it qualifies for a loan modification program. Suppose that there are two programs that target a DTI of 31 percent and so reduce the monthly payment from \$1,367 to \$1,049. The first program accomplishes this by reducing the interest rate to 4.8 percent and extending the mortgage term an additional thirty months, to thirty years. The household remains in a negative equity position, but the lower interest rate allows the household to build equity slightly more quickly, so that after five years the remaining mortgage balance will exceed the house value by \$1,312. If the household wants to save for a new down payment over this five-year period, it must accumulate \$48,585, for an effective DTI of 48 percent—lower than the 56 percent without the loan modification, but still quite high.

The second modification program, like the first, lowers the interest rate on the existing mortgage and extends the term of the loan; in addition, however, it reduces the principal balance to the current value of the house. Under this program, the principal declines by \$18,182 and the new interest rate is 5.6 percent. The new monthly payment is the same as under the first modification program. To save for a new down payment over a five-year period, the household must accumulate \$33,885—markedly less than under the first program. Moreover, this amount of required saving would raise the household's effective DTI to 43 percent—again, a level lower than the 48 percent under the interest-rate-only modification program.

Clearly, a loan modification program that lowers the principal balance on a mortgage will do more to support homeownership than a program that simply eases the terms of the loan. And the demand it places upon a household to cut consumption is appreciably less than that imposed by the interest-rate-only program. Still, even a reduced DTI of 43 percent will leave households financially stretched, and it is unlikely that many negative equity mortgage holders will be able to sustain the high rate of saving needed to remain a homeowner.

<sup>1</sup> In this example, then, the current LTV is 110, very close to the median LTV (111) among negative equity mortgages in the fourth quarter of 2009.

<sup>2</sup> This example assumes that the household has no other financial assets that it can use to help fund its next purchase.

Appendix Table

**Modifying Negative Equity Mortgages for Affordability**

Dollars Except as Noted

Household and Mortgage Characteristics	Original	Modification Program 1	Modification Program 2
House value	181,818	181,818	181,818
Mortgage balance	200,000	200,000	181,818
Interest rate (percent)	7.0	4.8	5.6
Mortgage principal, interest, taxes, and insurance (PITI)	1,700	1,382	1,382
Monthly income	4,474	4,474	4,474
Debt service-to-income (DTI) ratio (percent)	38	31	31

Saving for a New Down Payment	Original	Modification Program 1	Modification Program 2
Borrower equity after five years <sup>a</sup>	(3,822.83)	(1,312.06)	13,387.86
Down payment to buy a house of this price	36,363.64	36,363.64	36,363.64
Transaction cost at 6 percent	10,909.09	10,909.09	10,909.09
Savings required to buy again in five years	51,095.55	48,584.78	33,884.86
Savings per month (over five years, assuming 1.6 percent interest rate)	818.55	778.33	542.84
“Full” housing cost-to-income ratio (percent) <sup>b</sup>	56.3	48.3	43.0

<sup>a</sup> Values presented assume no house price growth.<sup>b</sup> Full housing cost includes both the mortgage PITI and the savings required to purchase a new home of equal value in five years.**References**

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**ABOUT THE AUTHORS**

Andrew Haughwout is a vice president in the Microeconomic and Regional Studies Function and Richard Peach a senior vice president in the Macroeconomic and Monetary Studies Function of the Federal Reserve Bank of New York; Joseph Tracy is an executive vice president and senior advisor to the Bank’s president.

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## RECENT FEDERAL RESERVE BANK OF NEW YORK RELEASES ON THE HOUSING MARKET

A longer, more technical version of this *Current Issues* article appeared in the Research and Statistics Group's working paper series. See Andrew Haughwout, Richard Peach, and Joseph Tracy, "The Homeownership Gap," Federal Reserve Bank of New York *Staff Reports*, no. 418, December 2009.

Other recent New York Fed publications and papers consider additional dimensions of the housing crisis: the rating of mortgage-backed securities, the regional experience of house price volatility, and the effects of mortgage modification on re-default rates:

### MBS Ratings and the Mortgage Credit Boom

Adam Ashcraft, Paul Goldsmith-Pinkham, and James Vickery  
Federal Reserve Bank of New York *Staff Reports*, no. 449,  
May 2010

The authors study credit ratings on subprime and Alt-A mortgage-backed securities (MBS) deals issued between 2001 and 2007, the period leading up to the subprime crisis. They find that the amount of credit enhancement increases with the amount of mortgage credit risk (measured either ex ante or ex post), suggesting that ratings contain useful information for investors. However, the authors also find evidence of significant time variation in risk-adjusted credit ratings, including a progressive decline in standards around the MBS market peak between the start of 2005 and mid-2007. They observe, conditional on initial ratings, underperformance (high mortgage defaults and losses and large rating downgrades) among deals with observably higher-risk mortgages based on a simple ex ante model and deals with a high fraction of opaque low-documentation loans. These findings hold over the entire sample period, not just for deal cohorts most affected by the crisis.

### Bypassing the Bust: The Stability of Upstate New York's Housing Markets during the Recession

Jaison Abel and Richard Deitz  
Federal Reserve Bank of New York *Current Issues in Economics and Finance* 16, no. 3, March 2010

Over the past decade, the United States has seen real estate activity swing from boom to bust. But upstate New York has been largely insulated from this volatility, with metropolitan areas such as Buffalo, Rochester, and Syracuse even registering home price increases during the recession. An analysis of upstate housing markets over the most recent residential real estate cycle indicates that the region's relatively low incidence of nonprime mortgages and the better-than-average performance of these loans contributed to this stability.

### Second Chances: Subprime Mortgage Modification and Re-Default

Andrew Haughwout, Ebiere Okah, and Joseph Tracy  
Federal Reserve Bank of New York *Staff Reports*, no. 417,  
December 2009

Mortgage modifications have become an important component of public interventions designed to reduce foreclosures. This paper examines how the structure of a mortgage modification affects the likelihood of the modified mortgage re-defaulting over the next year. Using data on subprime modifications that precede the government's Home Affordable Modification Program, the authors focus their attention on those modifications in which the borrower was seriously delinquent and the monthly payment was reduced as part of the modification. The data indicate that the re-default rate declines with the magnitude of the reduction in the monthly payment, but also that the re-default rate declines relatively more when the payment reduction is achieved through principal forgiveness as opposed to lower interest rates.

## INFORMATION ON THE FORECLOSURE CRISIS AVAILABLE ON NEW YORK FED WEBSITE

The Federal Reserve Bank of New York's U.S. Credit Conditions website ([data.newyorkfed.org/creditconditions](http://data.newyorkfed.org/creditconditions)) offers detailed, timely data on the incidence of mortgage foreclosures and delinquencies in the nation and in individual states and counties. The information, presented through charts, interactive maps, and spreadsheets, is designed to help government agencies, community groups, commercial institutions, and other practitioners better understand and respond to local conditions associated with failed and troubled mortgages.

The site offers a range of informative features. Visitors can compare delinquency rates across geographical areas and across types of mortgages—for example, prime, subprime, or Fannie Mae and

Freddie Mac loans. Red and green "heat maps" illustrate whether conditions have worsened or improved over the past year. In addition, a sequence of charts shows the likelihood that subprime and Alt-A mortgages will roll from their current status to thirty days late, from sixty to ninety days late, or from ninety days late to foreclosure. The roll rates are presented in terms of the number of mortgages likely to roll from one status to the next and in terms of dollar volumes.

The goal of the U.S. Credit Conditions website is to provide information that will help public and private sector decision makers identify the best strategies to resolve the delinquency and foreclosure problem and to mitigate its impact on communities.