Everything You Always Wanted to Know About Reverse Mortgages but Were Afraid to Ask*

BY MAKOTO NAKAJIMA

Most people have probably heard of reverse mortgage loans. But even though these loans have been getting more attention lately, it's possible that many people still aren't sure about what reverse mortgages really are. This is not surprising, since reverse mortgages are a relatively new type of mortgage loan. Although reverse mortgages are currently used by only a small fraction of people, their popularity has been growing in recent years. In this article, Makoto Nakajima discusses reverse mortgage loans, particularly the most popular type, which is administered by the government. He discusses who uses reverse mortgage loans and how they are used and compares the pros and cons of these mortgages.

You've probably heard of reverse mortgage loans. But even though these loans have been getting more attention in the media and in academia, it's possible that you're still not sure about what reverse mortgages really are.[1] This is not surprising, since reverse mortgages are a relatively new type of mortgage loan — and very different from the conventional type of mortgage — and they are used only by older homeowners.

Although reverse mortgages are currently used by only a small fraction of people, their popularity has been growing in recent years. Surprisingly, their popularity continued to grow into 2009, but the growth of reverse mortgage loans may have started to decline in 2010.[2]

This article discusses reverse mortgage loans, particularly the most popular type, which is administered by the government. One feature that makes government-administered reverse mortgage loans attractive to borrowers in an economic downturn accompanied by a house price decline is that this type of mortgage loan has a built-in insurance against declines in house prices. I will explain this feature and other features of reverse mortgage loans below.

ABCs OF REVERSE MORTGAGE LOANS

Nowadays, the most popular type of reverse mortgage loan is administered by the government, while the private market for reverse mortgages has been relatively shrinking. The government-administered reverse mortgage is called a home equity conversion mortgage (HECM). These mortgage loans are administered by the Federal Housing Administration (FHA), which is part of the U.S. Department of Housing and Urban Development (HUD). HECM loans represent over

[1] For media reports, see, for example, "Pros and Cons of Reverse Mortgages" (*Time*, July 20, 2009); "Pimping Up Your Reverse Mortgage" (*Businessweek,* February 5, 2007). Various transgressions associated with reverse mortgages made the list of "Six Problems the Consumer Financial Protection Bureau Should Tackle First" (*Time*, July 6, 2010). In particular, *Time* and the *Wall Street Journal* ("Debate on Reverse-Mortgage Risks Heats Up," December 14, 2010) report that some banks and brokers push older households into taking out reverse mortgages in ways that are not necessarily beneficial for the borrowers but ways in which banks and brokers can earn large fees or other profits. However, both also report that improved federal guidelines regarding fees associated with reverse mortgages have helped to lower the incidence of such transgressions.

[2] In 2011, the two biggest lenders of reverse mortgage loans, Bank of America and Wells Fargo, decided to leave the reverse mortgage market. Reasons given include the decline in house prices and the inability to assess borrowers' financial health, such as income (*New York Times*, "2 Big Banks Exit Reverse Mortgage Business," June 17, 2011).

*The views expressed here are those of the author and do not necessarily represent the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.

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90 percent of all reverse mortgages originated in the U.S. market (see Hui Shan's article).[3]

When buying a house, especially a first house, most people in the U.S. use a conventional mortgage loan. With a conventional mortgage, people make a down payment, which is typically around 20 percent of the house value, and borrow the remaining value of the house (around 80 percent).[4] The borrower repays the principal and makes interest payments on the outstanding loan balance. As the borrower repays the principal, he accumulates home equity. The typical repayment period is 30 years. When the borrower finishes repaying the loan, he owns 100 percent of the equity in his house, free and clear.

How are reverse mortgages different from the conventional mortgages described above? Below are the six distinctive features of the government-administered HECM loans. First, as the name suggests, a reverse mortgage loan works in the *reverse* way from a conventional mortgage loan. With a reverse mortgage, instead of paying interest and principal and accumulating home equity, reverse mortgages allow homeowners to borrow against the home equity they have accumulated.

Second, reverse mortgage loans have different requirements than conventional mortgage loans. These mortgages are available only to borrowers age 62 or older. Also, borrowers must be homeowners and must live in the house. Properties eligible for HECM loans are (1) single-family homes, (2) one unit of a one- to four-unit home, and (3) a condominium approved by HUD. Finally, borrowers must have repaid all or almost all of their other mortgage loan at the time they take out a reverse mortgage. Home equity lines of credit (HELOCs) are similar to reverse mortgage loans in that they allow households to borrow flexibly against accumulated home equity. However, while the repayment of HELOCs is based partially on the borrower's income, repayment of reverse mortgages is based solely on the value of the house. This difference makes reverse mortgages more readily available for use than HELOCs, especially for those with limited income after retirement. According to Andrew Caplin, many older homeowners fail to qualify for conventional mortgage loans because of income requirements. In short, reverse mortgages are more suitable for older homeowners who own the house they live in and whose income is relatively low.

Third, reverse mortgage borrowers are required to seek counseling from a HUD-approved counselor in order to be eligible for a HECM loan. The goal is to be certain that older borrowers understand what kind of loan they are getting and what the potential alternatives are before taking out a reverse mortgage loan.

Fourth, repayment of the cash received is due only when the house is sold and all the borrowers move out or when all the borrowers die.[5] As long as at least one of the borrowers continues to live in the same house, there is no need to repay any of the loan amount. There is no gradual repayment with a fixed schedule, as with a conventional mortgage loan or a HELOC; repayment is made in a lump sum from the proceeds from the sale of the house. Naturally, borrowers who manage to live in the same house for a long time benefit most from reverse mortgages.

Fifth, borrowers are insured against substantial drops in house prices. Borrowers (or their heirs) can repay the loan either by letting the reverse mortgage lender sell the house or by paying in cash. Most use the first option. In the first case, a mortgage lender sells the house attached to the reverse mortgage loan and uses the proceeds of the sale to repay the loan and to pay for various costs. If the sale value of the house turns out to be larger than the sum of the total loan amount and the various costs of the loan, the borrowers receive the remaining value. In the opposite case, where the house value cannot cover the total costs of the loan, the borrowers do not need to pay anything extra. The insurance covers the difference. In fact, the mortgage lender does not have to absorb the loss, either, because the loss is covered by insurance, which is a part of HECM loans. The FHA imposes an insurance premium for this benefit; the insurance premium is included in the total costs of a HECM loan. In a housing market downturn, reverse mortgage loans can play a particularly important role by protecting older households with reverse mortgages from being hit by large declines in house prices.[6]

Finally, there are various ways to receive cash (payment options) out of

When buying a house, especially a first house, most people in the U.S. use a conventional mortgage loan.

[3] Many other reverse mortgage products, such as Home Keeper mortgages, which were offered by Fannie Mae, or the Cash Account Plan offered by Financial Freedom, were recently discontinued, in parallel with the expansion of the HECM market. See the article by Bruce Foote.

[4] Mortgages with lower (or zero) down payments were also used, especially during the period leading to the recent downturn.

[5] Other incidents may make reverse mortgage loans come due, such as the failure to pay property taxes or to maintain the property. On the other hand, borrowers can pre-pay regardless of when the loan is due, typically without any additional cost.

home equity. Borrowers can choose according to their needs when they borrow against the value of their house. Here are the five payment options listed on the home page of HUD's website. Borrowers can change the payment options during the life of a reverse mortgage, at a small cost.

- **Tenure:** Borrowers continue to receive a fixed amount of cash as long as one of the borrowers continues to live in the same house.
- **Term:** Borrowers receive a fixed amount of cash for a fixed length of time.
- **Line of credit:** Borrowers can flexibly draw cash, up to a limit, during a pre-determined drawing period.
- **Modified tenure:** Combination of the tenure option and the line of credit option.
- **Modified term:** Combination of the term option and the line of credit option.

The tenure option is similar to Social Security in the sense that the borrowers can keep receiving cash as long as they are alive (and stay in the same house). The term option is similar to the tenure option, but borrowers receive cash only during a fixed period. If borrowers live and stay in the house beyond the fixed period, borrowers can no longer receive cash out of the reverse mortgage.[7] Under the tenure option, the time span for receiving cash is basically the remaining lifetime of the borrowers. So the time span under the term option tends to be shorter than under the tenure option. When the total loan amount is the same, the borrowers can receive higher cash payments per period if they receive them over a shorter time span under the term option. The line-of-credit option is similar to a HELOC in that it is flexible in terms of the timing and the amount withdrawn.

How much can one borrow using a reverse mortgage? Let's start with the case in which borrowers receive a one-time cash payment under a reverse mortgage. The starting point is the appraised value of the house, but there is a federal limit for a government-administered HECM loan. Currently, the limit is $625,500 for most states. The limit was raised in 2009 from $417,000 as part of the Housing and Economic Recovery Act of 2008. If the appraised home value exceeds this limit, the home value is assumed to be the HECM limit when the loan amount is calculated. Private mortgage lenders offer *jumbo reverse mortgage loans*, which allow borrowers to cash out more than the federal limit. However, borrowers have used jumbo reverse mortgages less and less often as the federal limit has been raised.

Reverse mortgage borrowers cannot receive the full amount of the house value (or the HECM limit if the house value exceeds it) because there are various costs that have to be paid from the house value as well. There are two types of costs: noninterest costs and interest costs. Moreover, if borrowers have outstanding mortgages, part of the new mortgage loan will be used to pay off the outstanding balance of other mortgages. Noninterest costs include an origination fee, closing costs, an insurance premium, and a loan servicing fee. The insurance premium depends on the value of the house and how long the borrowers live and stay in the same house. More specifically, the insurance premium is 2 percent of the appraised value of the house (or the limit if the value is above the limit) initially and 1.25 percent of the loan balance annually.[8] Interest costs depend on the interest rate, the loan amount, and how long the borrowers live and stay in the house. The interest rate can be either fixed or adjustable. In the case of an adjustable interest rate, there is typically a ceiling on how much the interest rate can go up per year or during the life of the loan.

In sum, the amount that homeowners can borrow, which is called the *initial principal limit*, is larger if (1) the house value is larger, (2) there is a lower (or zero) outstanding balance on other mortgage loans, (3) the borrower is older,[9] and (4) the interest rate is lower. Figure 1 shows the distribution of the initial principal limit among government-administered HECM loans between 2003 and 2007, expressed as a percentage of the house value against which mortgage loans are borrowed. You can see that many homeowners can borrow around 60 to 70 percent of the appraised house value using reverse mortgages. If the term option is chosen, the total loan amount is divided depending on the number of times the borrowers receive cash.[10] With the tenure option, the

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[6] Of course, the government and, ultimately, taxpayers pay for the insurance benefit in cases in which reverse mortgage borrowers are hit by a large decline in house prices. Therefore, in assessing the value of reverse mortgage loans for society, we must compare the benefits enjoyed by reverse mortgage borrowers on those occasions against the costs borne by taxpayers. I will discuss this issue in the conclusion.

[7] The borrowers might die or move out before receiving all of the scheduled payments. In that case, the debt under the term option is determined according to the amount the borrowers have received up to that point.

[8] In October 2010, the annual insurance premium was increased from 0.5 percent to 1.25 percent of the appraised value of the house, in response to the decline in house prices.

[9] As long as all of the borrowers live in the same house, there can be multiple borrowers for a reverse mortgage loan. In this case, "age of the borrower" refers to the age of the youngest borrower.

[10] To be more precise, the total amount of cash received will be adjusted because the total amount of interest and noninterest costs changes as the withdrawal schedule changes. Typically, borrowers receive the same cash amount each period.

amount of cash payment per period is determined by the number of times the borrowers are expected to receive cash.

REVERSE MORTGAGE LOANS BY THE NUMBERS

Since reverse mortgage loans first appeared in 1987, the number of households with reverse mortgages has grown. Figure 2 shows the proportion of home-owning households age 65 or older that had reverse mortgages between 1997 and 2009. Both government-sponsored and private mortgage loans are included. As you can see in the figure, the use of reverse mortgages was limited until around 2000. In 2001, the proportion of older (65 years old or above) homeowners who have reverse mortgages was about 0.2 percent. The proportion of households using reverse mortgages has increased rapidly since then, reaching 1.4 percent in 2009. Although the level (1.4 percent) is still low, the growth is all the more impressive if one considers that the popularity of reverse mortgages continued to rise even though the housing market and mortgage markets in general have been stagnating.[11]

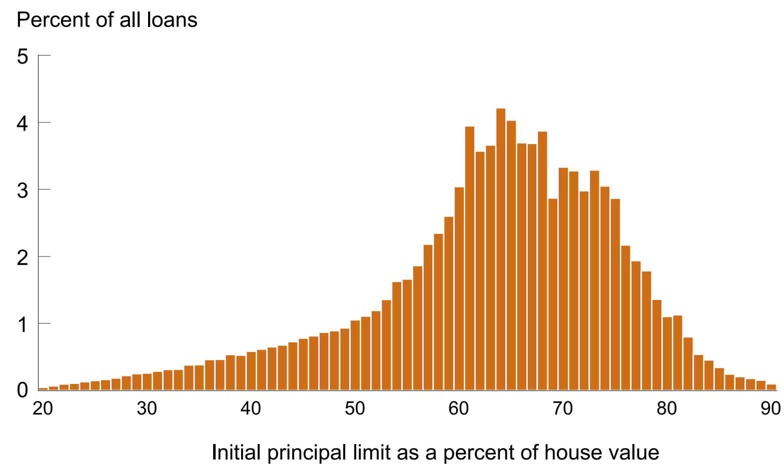
For comparison, Figure 3 shows how the popularity of HELOCs has changed over time. The popularity of HELOCs, as measured by the proportion of households with HELOCs, has moved with house prices (Figure 4 shows the average U.S. house price), rising from 1999 to 2005 but falling since 2007. The difference in the dynamics suggests that the popularity of reverse mortgages is driven not only by the growth in house prices but also by other elements. I will discuss some of these elements below.

Why did the use of reverse mortgages continue to rise even during the recession with the disappointing

[11] Later in this article I will discuss why the popularity of reverse mortgage loans remains so low.

FIGURE 1

Distribution of Initial Principal Limit of HECM Loans, 2003 - 2007

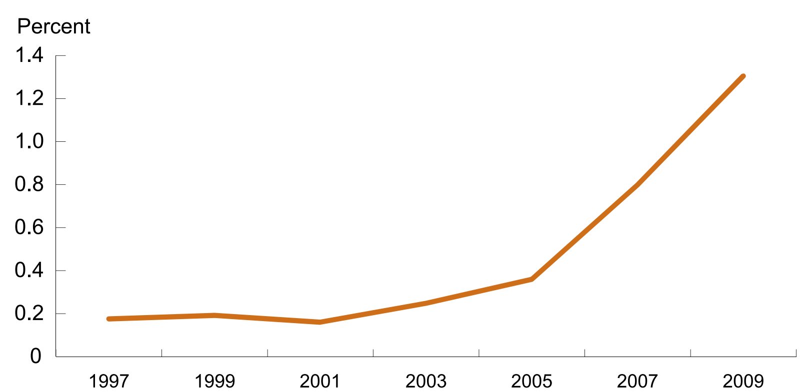


Source: Article by Hui Shan

Note: Only the government-administered HECM loans during 2003-2007 are included.

FIGURE 2

Percentage of Older Households with RMLs

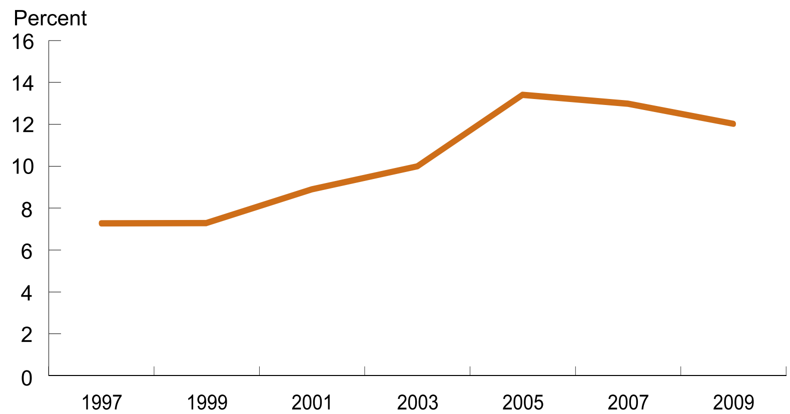


Data Source: American Housing Survey, various years

Note: Both public and private reverse mortgage loans are included.

FIGURE 3

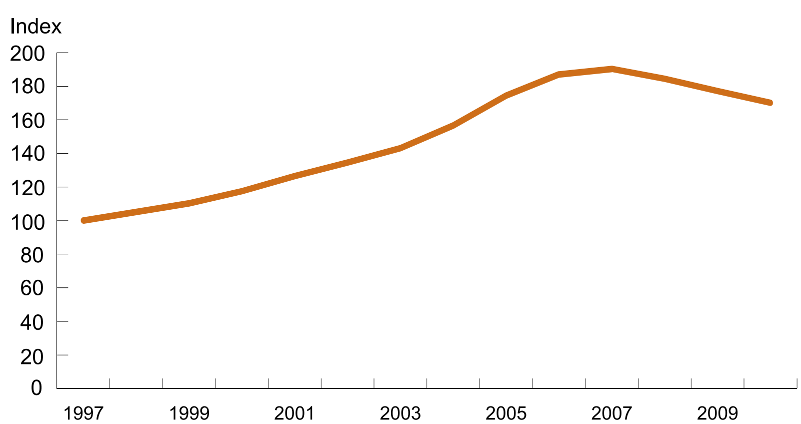
Precentage of Households with HELOCs



Data Source: American Housing Survey, various years

FIGURE 4

House Price Index for the U.S. (1997 = 100)



Data Source: Federal Housing Finance Agency

performance of the housing market? There are five possible explanations. First, the recession lowered the value of retirees' financial assets, especially their stock market investments, and these retirees had to tap home equity in the form of reverse mortgages. Second, the maximum amount that older households can take out using a government-administered reverse mortgage loan was increased in 2009. This change might have attracted more potential borrowers. Third, the continued increase in medical expenditures and other health-care costs after retirement has been pushing up the demand for financial instruments, such as reverse mortgages, that allow homeowners to cash out home equity. Fourth, more and more baby boomers have been retiring with relatively insufficient savings. Finally, more and more people have learned about reverse mortgages or got to know people who use reverse mortgage loans, both of which have made people more familiar with these financial products.

Whether the strong growth in the reverse mortgage market will continue depends on what lies behind its strong growth so far. If the last three reasons are the main ones, we should expect reverse mortgages to continue to grow in the near future. In addition, the fact that people live longer and that the proportion of older people in the total population continues to get larger with the aging of the baby boomers also implies that it is likely that the reverse mortgage market will continue to grow, although the potential market size of reverse mortgage loans is still being debated. (See *Estimating the Market Potential of Reverse Mortgage Loans*.)

So now we have seen that the use of reverse mortgages has been increasing. But who is actually taking out reverse mortgages? Hui Shan looked at the characteristics of areas with more reverse mortgage borrowers and then investigated how those characteristics

Estimating the Market Potential of Reverse Mortgage Loans

Since the inception of reverse mortgage loans as a financial product, there has been a discussion of how large the potential market for reverse mortgages is. The question has been of interest to many people especially because the use of reverse mortgage loans has been more limited than expected.* An intuitive way to estimate the potential market size of reverse mortgage loans is to count the number of households in the data that might be better off if they had access to reverse mortgages. One of the first such calculations was conducted by David Rasmusssen, Issac Megbolugbe, and Barbara Morgan. Using 1990 U.S. census data, they argue that more than 6.7 million households age 69 or above (almost 80 percent of home-owning households age 69 and above) or 11.1 million of households age 62 or above could benefit from access to reverse mortgages. They compute this by counting households age 69 (or 62) or above with home equity exceeding $30,000 and without mortgage loans. Sally Merrill, Meryl Finkel, and Nandinee Kutty implemented a similar exercise with a more conservative set of assumptions. They counted the number of households age 69 or above with housing equity between $100,000 and $200,000, relatively low incomes of less than $30,000 per year, and a strong commitment to stay in their current house (specifically, those who have not moved for the last 10 years), and that own their house free and clear. Merrill, Finkel, and Kutty concluded that the potential market size of reverse mortgage loans is rather limited, at about 0.8 million households, or about 9 percent of all homeowners over age 69.

The two estimates are very different. But even the lower estimate suggests that there might be a large potential for growth of the reverse mortgage market, considering that only 1.4 percent of home-owning households age 65 or above were using reverse mortgage loans in 2009.

* For example, until 1994, HUD had issued only 7,994 HECM loans, even though it was authorized to make 25,000 HECM loans, according to a HUD report published in 1995.

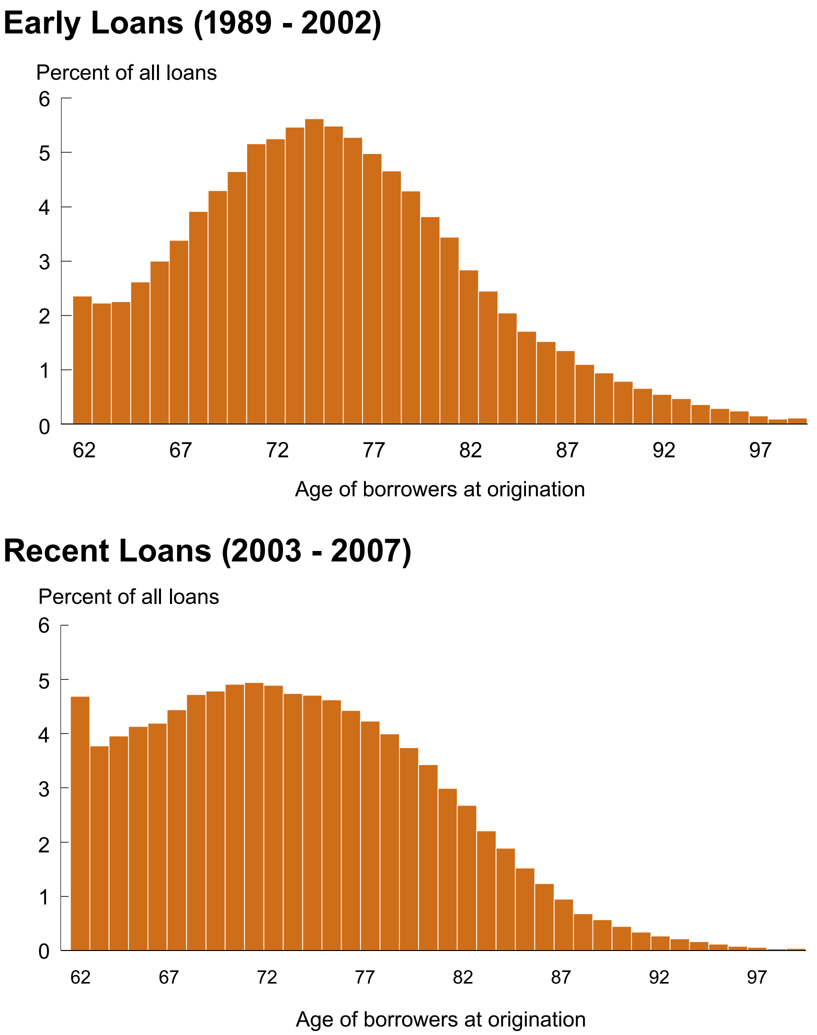
changed over time.[12] She found that areas with more reverse mortgage borrowers tend to have lower household income, higher house value, and relatively higher homeowner costs. These characteristics are consistent with the types of households that benefit most from taking out reverse mortgage loans. She also found that areas with more reverse mortgage borrowers tend to have lower credit scores. There are two possible explanations for this finding. First, as mentioned earlier, reverse mortgage loans do not require good credit scores. Relatively younger households that want to borrow against home equity but cannot qualify for HELOCs because of low credit scores might end up using reverse mortgage loans. Second, borrowers with lower credit scores tend to have lower overall wealth and thus need to borrow against home equity. In terms of the demographic characteristics of reverse mortgage borrowers, Shan found that more singles (both male and female) are using reverse mortgages, compared with couples, and reverse mortgage borrowers tend to own houses of higher value. The median house value among reverse mortgage borrowers was $222,000 in 2007, which was about 25 percent higher than the median house value of all older homeowners ($175,000).

Shan also found that there have been some notable changes in terms of the characteristics of reverse mortgage borrowers over the past 20 years. In particular, reverse mortgage borrowers have always been older than those who did not take out reverse mortgage loans, but the gap has been closing as average reverse mortgage borrowers have been getting younger. For example, the average age of older homeowners in 1989 was 70, while the average age among reverse mortgage borrowers was 75. In 2007 the average age of reverse mortgage borrowers was 72, which was just one year above the average age of older homeowners (71). Figure 5 shows the age distribution of reverse mortgage borrowers who took out reverse mortgage loans in earlier periods (1989-2002) and in more recent periods (2003-2007). You can see that the distribution is shifting to the left, meaning more and more relatively younger households are taking out reverse mortgage loans. An interesting observation is that there is a spike at age 62 (the earliest age at which the federally administered reverse

[12] Marvin M. Smith provides a nontechnical summary of Shan's work in the Federal Reserve Bank of Philadelphia's *Cascade* (Spring/Summer 2010).

FIGURE 5

Age Distribution of Reverse Mortgage Borrowers



Source: Article by Hui Shan

Note: Only the government-administered HECM loans are included.

mortgage becomes available) in both figures, and the spike has become more dramatic in recent years. This suggests that more and more households are "waiting" to reach age 62 so that they can take out reverse mortgage loans.

Remember the earlier discussion of the various ways to receive cash under a reverse mortgage. Which payment options are most popular? The line of credit option has been the most popular by far. HUD reports that the line of credit plan is chosen either alone (68 percent) or in combination with the tenure or term plan (20 percent). In total, close to 90 percent of borrowers use the line of credit plan.[13]

[13] Using data from 2007, Shan also reports that 82 percent of borrowers choose the line of credit plan. In Shan's sample, only 10 percent choose the tenure or modified tenure plan.

It seems that older homeowners use reverse mortgages mainly to flexibly withdraw cash out of accumulated home equity.

THREE POTENTIAL BENEFITS OF REVERSE MORTGAGE LOANS

Now let's analyze the benefits and costs of reverse mortgage loans using economic intuition, starting with benefits. First, when other, more conventional mortgage loans are not easy to obtain, reverse mortgages provide a way for older homeowners to cash out home equity without leaving their home. Alternatively, older homeowners can cash out their home equity by either selling their home and downsizing (moving to a smaller and cheaper house) or becoming renters. However, research shows that is not what most older homeowners want. The study by Steven Venti and David Wise shows that most older households do not move unless some catastrophic event occurs (such as the death of a spouse or a sharp deterioration in health) and they are forced to move out. Another study by the AARP (formerly, the American Association of Retired Persons) found that 89 percent of surveyed Americans over 55 years of age reported that they want to remain in their current residence as long as possible. Figure A in the box on page 26 shows the homeownership rate among older households, taken from my working paper with Irina Telyukova (2011a). (For more details, see *Financial Situations of Older Households*.) You can see that the homeownership rate declines as households age, but slowly. Considering this evidence, cashing out home equity using reverse mortgages while staying in the same house offers substantial benefits over the alternatives of moving to a smaller house or becoming a renter.

Second, reverse mortgages provide insurance against a decline in house

Financial Situations of Older Households

In a working paper (2011a), Irina Telyukova and I organized the facts about the financial situations of older U.S. households, using a rich data set called the Health and Retirement Study (HRS). To keep track of the same households over time, we looked at six groups of households — those age 65, 70, 75, 80, 85, and 92 in 1996 — and kept track of the financial situations of these six groups between 1996 and 2006. Below is a summary of our findings.

About 90 percent of households at age 65 are homeowners (Figure A). The proportion declines as households age, but it remains at around 50 percent for households at age 90. A large fraction of the decline is caused by two-adult households becoming one-adult households, possibly because of the death of a spouse. About 80 percent of two-adult households remain homeowners even at age 90.

Older households also consistently reduce borrowing as they age. Figure B shows the proportion of households with secured debt, mainly home mortgages and other types of borrowing against home equity. The proportion declines with age; for example, among households that are age 90, only about 3 percent hold a positive balance of unsecured debt. If they cannot borrow even though they want to, reverse mortgage loans can potentially be beneficial for those households.

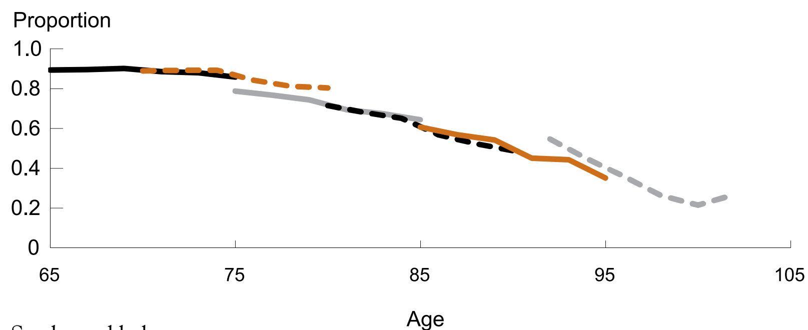
Figure C shows the proportion of households with unsecured debt, mainly credit card debt. The proportion also decreases consistently with age. About 5 percent of homeowners hold a positive balance of credit card loans.

Figure D exhibits how financial asset holdings among older households change as the households age. The figure shows that median older households, especially in the later part of life, reduce their holdings of financial assets. The figure also shows that younger households seem to have experienced some increase in their financial assets. This could be due to booms in stock and housing prices during the period 1996-2006. While households in retirement tend to reduce their holdings of financial assets, the gains from strong markets overwhelmed the gradual reduction of these households' financial assets.

Figure E looks at the median housing asset holdings. Median housing assets increased for most groups, but a large part of the increase was due to rising house values during the period we are looking at.

FIGURE A

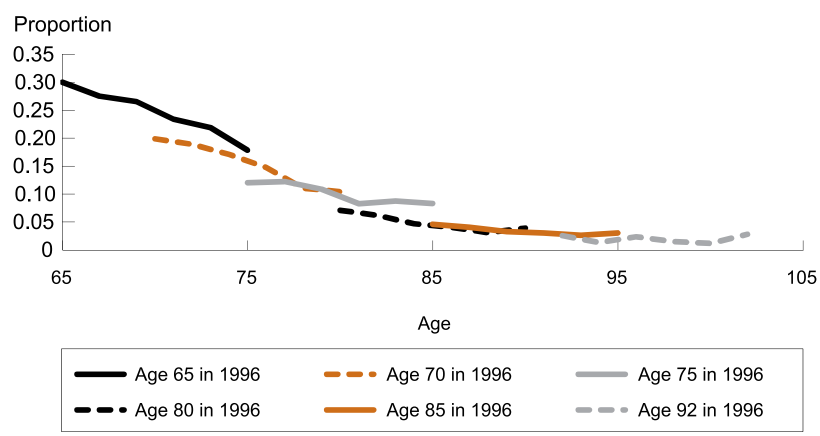
Homeownership Rate



See legend below.

FIGURE B

Proportion of Households with Secured Credit



Data Source: Health and Retirement Study, various years

FIGURE C

Proportion of Households with Unsecured Credit

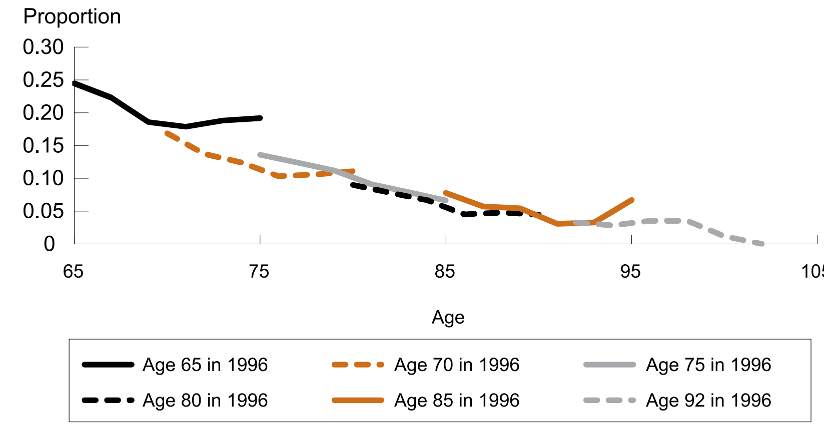
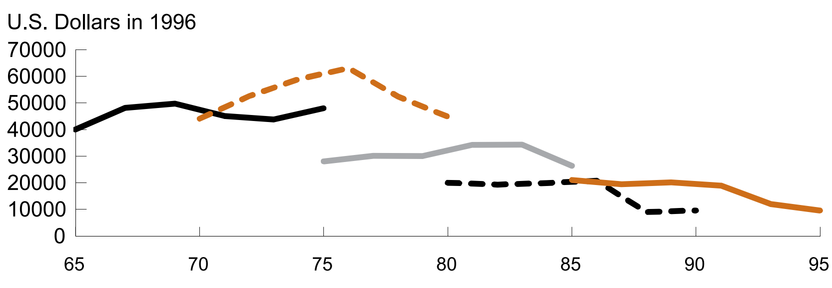


FIGURE D

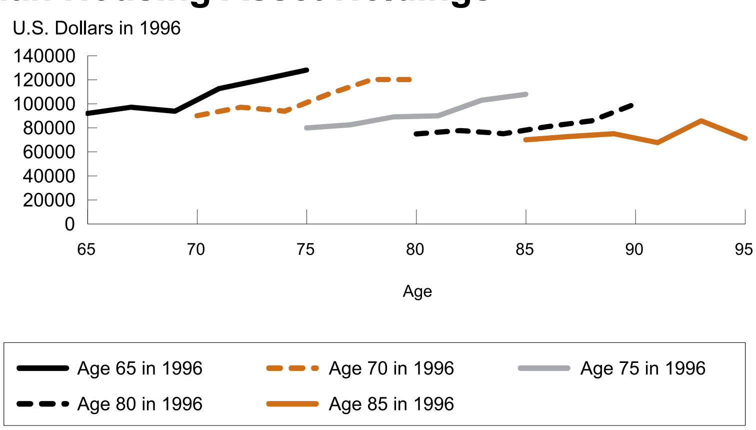
Median Financial Asset Holdings



See legend below.

FIGURE E

Median Housing Asset Holdings



Data Source: Health and Retirement Study, various years

value, at the cost of an insurance premium. The insurance does not cover a small decline in house value in the sense that reverse mortgage borrowers do not benefit from the insurance as long as the selling price of the house when the loan is due still covers the loan amount and all the costs; in that case, the borrowers just receive less cash when the loan is due. However, in a case where the selling price turns out to be so low that it is insufficient to cover the loan amount and the costs, the reverse mortgage borrower is not obliged to pay the gap. The gap is paid by the insurance that is a part of HECM loans. Currently in the U.S., because of the recent sharp drop in house prices, many homeowners are caught in a situation where the value of their house is lower than the total amount of mortgage debt or the HELOC borrowed against the house (this situation is called negative home equity). They cannot sell their house without paying the difference between the amount of debt and the house value with cash or by foreclosing. Under these circumstances, reverse mortgage borrowers benefit from the insurance feature because reverse mortgage borrowers are protected from negative home equity.

Third, reverse mortgage loans provide insurance against longevity risk when the tenure option is used. Under the tenure option, reverse mortgage borrowers do not need to worry about outliving the loan because borrowers can keep receiving payments no matter how long they live. In this sense, the tenure option is similar to the Social Security system with defined benefits, providing an annuity and relieving borrowers from the concerns of outliving their savings. Since not many reverse mortgage borrowers actually use this option, this benefit might not be that important. Is the limited use of the tenure option due to low demand by reverse mortgage borrowers or due to the high costs associated with it? This is an open question.

THREE POTENTIAL DISADVANTAGES OF REVERSE MORTGAGE LOANS

Of course, reverse mortgages are not without problems. First, reverse mortgages might discourage saving and thus hurt older homeowners who discover that they did not save enough. If households can always save exactly the amount they need in the future, there is no such problem. But can all households do so? Research by David Laibson says no. Laibson argues that people tend to have self-control problems and cannot save as much as they need. An illustrative example of such a problem is quitting smoking. People might think they can smoke today but they will quit tomorrow. But when tomorrow comes, they tend to think in the same way: They can smoke today and quit tomorrow. In the current context, households think they can spend today but start saving tomorrow. But when tomorrow comes, they might think in the same way: Spend today and postpone saving one more day, and so on. In such a situation, Laibson argues, illiquid assets (in the sense that they are costly to sell or withdraw) such as housing or retirement plans (individual retirement accounts [IRAs], 401(K), etc.) give people a way to commit to saving. They are like a piggy bank: Once you put cash into it, it is not easy to get the cash out. Basically, people can force their future selves not to withdraw money and thus save.

However, under these circumstances, flexible mortgage instruments such as reverse mortgage loans work to undo the piggy bank role of housing and thus could hurt people. People could commit to saving by purchasing a house because it is not easy to sell the house. However, this commitment to saving is not effective if it is easy to cash out one's home equity using reverse mortgages. It is still costly to sell the house to get cash, but by using a reverse mortgage loan, one can cash out flexibly without selling the house. So reverse mortgages are like a big hole in the piggy bank. In this sense, reverse mortgage loans could hurt (relatively young) older homeowners by making it easy for them to cash out home equity. (Relatively old) older homeowners might end up having insufficient savings because it was easy for them to cash out home equity using reverse mortgages when they were (relatively) younger.[14] The age limit for government-administered reverse mortgage loans (62) and the requirement that to be eligible for reverse mortgage loans households must own their house with little or no outstanding mortgage balance can prevent such dissaving through reverse mortgage loans to some extent, but as people live longer and longer, the problem becomes more and more serious.

Second, reverse mortgages help borrowers reduce various kinds of risks, such as the risk of a decline in house prices, but at the same time, reverse mortgage loans come with another kind of risk for borrowers: moving out of the house too soon. Since reverse mortgage loans require relatively large upfront costs, borrowers suffer if they have to move out of their house shortly after taking out a reverse mortgage and before fully enjoying its benefits. In a sense, when taking out a reverse mortgage, borrowers are betting that they will live in the same house long enough to benefit from the reverse mortgage, and naturally, some borrowers end up losing the bet. In her recent working paper, Valentina Michelangeli argues that this is the main reason, regardless of all of the benefits of reverse mortgage loans listed earlier, only a small number of eligible households are actually using reverse mortgages; the risk of moving out too soon is too large even with all the benefits reverse mortgages offer to borrowers.

Third, reverse mortgage loans could exacerbate moral hazard problems, as analyzed by Thomas Davidoff and Gerd Welke. Moral hazard, in general, refers to a situation in which a person insulated from risk does not take responsibility for the consequences of his actions and, therefore, has a tendency to act less carefully than he otherwise would. A typical example is an insured driver who drives carelessly because he is insured in case of an accident. With reverse mortgages, since borrowers are insured against the risk of a decline in house prices, the sale price of the house does not affect reverse mortgage borrowers if it

Reverse mortgages help borrowers reduce various kinds of risks, such as the risk of a decline in house prices, but at the same time, reverse mortgage loans come with another kind of risk for borrowers: moving out of the house too soon.

[14] At the same time, people might be discouraged from saving as much as they would like because it is costly to sell a house or cash out home equity. In this case, reverse mortgages play a positive role in reducing such costs and encouraging saving.

is not enough to cover the total loan amount and all the costs of the reverse mortgage loan. In this case, how well reverse mortgage borrowers maintain a house will not affect how much they gain, which is zero anyway. At the end of the day, borrowers might not maintain the house (and therefore the house's value). However, the poor maintenance is not a direct problem from the perspective of reverse mortgage borrowers (because they don't suffer from it), but this problem might hurt reverse mortgage borrowers indirectly, since poor maintenance yields a lower selling price, and the government, in response, has to raise the cost of reverse mortgage loans to cover the lower price. In addition, the poor maintenance of the house might be a cost to society as well.

WHY ARE SO FEW PEOPLE USING REVERSE MORTGAGES?

One important question surrounding reverse mortgages is: why are only 1.4 percent of households using them, when even a conservative estimate of the proportion of older households that could benefit from access to reverse mortgage loans is 9 percent? (See *Estimating the Market Potential of Reverse Mortgage Loans*.) One possible answer is that the problems with reverse mortgages, especially the fear of moving out of one's house too soon after taking out a reverse mortgage and the high costs, outweigh their benefits, and thus not many households actually want reverse mortgage loans.[15] Another possible answer is that many households that could benefit from reverse mortgages don't know about them. Let me introduce three more explanations for the limited use of reverse mortgages.

First, older households may want to leave wealth — of which housing is a large part — as a bequest. Older households may not use reverse mortgages possibly because having a reverse mortgage may make it harder to include a house as part of a bequest. However, there are studies, including the one by Michael Hurd, that have found that people's desire to leave a bequest is not strong, except for very wealthy households.[16]

Second, households may be worried about large medical expenditures and may want to keep their housing to pay for such expenditures in the future. Mariacristina De Nardi, Eric French, and John Jones found that older households want to keep wealth (and thus do not want to use reverse mortgages) because they expect to incur large medical expenditures, especially toward the end of life.[17] This implies that when households actually need to cash out their home equity, they will not use reverse mortgages because they need immediate cash and probably do not expect to stay in their current house very long. On the other hand, reverse mortgages could help households that need to pay large medical bills by allowing them to pay the bills and still remain in their home. Therefore, medical expenditures could increase or reduce the popularity of reverse mortgages.

Third, Andrew Caplin emphasizes psychological elements. According to him, many older households might simply be reluctant to take on debt. Or some households may fear that a medical problem will keep them away from home for a lengthy period of time, in which case the reverse mortgage may become due and they have to vacate their house. The genuine risk of losing their house under these circumstances scares older households away from reverse mortgages, no matter how large the benefits are.[18] Moreover, news stories such as those that involve an older household being tricked into taking out a reverse mortgage to pay hefty costs for home repairs also play a role in strengthening older households' aversion to reverse mortgage loans.

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In my working paper with Irina Telyukova (2011a), we show that between the 1990s and the 2000s, during which time the reverse mortgage market was expanding, older households did not reduce their wealth much as they aged. (See *Financial Situations of Older Households* for more details.) At first sight, this evidence suggests that they do not need to extract home equity using reverse mortgage loans. How-

[15] A self-control problem might actually work to increase the popularity of reverse mortgage loans because households cannot resist the urge to use reverse mortgages according to the hypothesis.

[16] In my working paper with Irina Telyukova (2011b), we investigate the importance of this and other hypotheses of why the take-up rate of reverse mortgage loans is so low.

[17] Naturally, they focus on out-of-pocket medical expenditures, which are the uninsured portion of medical expenditures.

[18] Remember that borrowers have to live in the house, pay property taxes in a timely fashion, and maintain the house properly in order to keep using a reverse mortgage. If borrowers are out of the house for an extended period, this could make the reverse mortgage become due and force the borrowers to vacate the house.

ever, we argue that it might be partly because the housing and stock markets were both in good shape during that period, which reduced the need to tap in home equity. If that is the case, the demand for reverse mortgage loans will keep growing if the housing market stagnates further and the stock market cannot compensate for the lackluster performance of the housing market.[19]

CONCLUSION

In this article, I described reverse mortgage loans and shed some light on their economic benefits and costs. An important question surrounding reverse mortgages is how large the market for them will become. Since the take-up rate of reverse mortgage loans increased between 2000 and 2009, coinciding with the housing boom, and since there are signs that the growth in reverse mortgage loans may be slowing down, it is hard to answer questions about the long-term potential of reverse mortgages. In this article, I have argued that reverse mortgage loans have the potential to be beneficial for older households in the long run. As reverse mortgage loans become a standard tool for older households to extract home equity, it becomes even more important to understand the pros and cons of this financial instrument, not only for making sound decisions in terms of personal finances but also for understanding why public resources are used for the market. As I discussed, the government-administered reverse mortgage loans (HECM loans) have more than 90 percent of the market share, according to a recent study. The government regulates the terms of HECMs and subsidizes the loans. Moreover, the government insures against the risk of substantial drops in house prices for reverse mortgage borrowers by imposing an insurance premium.

Do we really need such extensive government involvement in the reverse mortgage market? This question is important, since the government's support for reverse mortgage loans is ultimately financed by taxpayers. There are two ways to look at the role of reverse mortgages from a policy perspective. One way is to understand the government's involvement in the reverse mortgage market as part of the public support for homeownership.[20] Although the government has been supporting homeownership through various measures, this support is being re-examined in the wake of the financial crisis, which was partially triggered by the decline in house prices and the subsequent slow economic recovery. The government's role in the reverse mortgage market will naturally be re-examined in the same context.

Another way to understand government's support of reverse mortgage loans is to consider it as part of the support for life after retirement, similar to Social Security payments; taxpayers are supporting older households indirectly through reverse mortgage loans. Ultimately, whether and how the government should remain a key player in the reverse mortgage market is an open question. BR

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[19] On the other hand, if house prices are not consistently increasing, reverse mortgage loans become riskier for mortgage lenders. In that case, mortgage lenders either need to increase the costs of reverse mortgages to cover the risk or eventually get out of the business.

[20] The *Business Review* article by Wenli Li and Fang Yang discusses a variety of government programs to promote homeownership.

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