



THE OHIO STATE UNIVERSITY

“Who Gets a Reverse Mortgage? Identifying Household Level Determinants of U.S. Reverse Mortgage Choices”

**Presentation by Donald Haurin
Department of Economics, Ohio State University**

**Co-authors: Stephanie Moulton, Ohio State University
Wei Shi, Ohio State University**



Disclaimer

The research reported herein is being performed pursuant to a grant from the MacArthur Foundation as part of the “How Housing Matters” Research Competition and with funding from The U.S. Department of Housing & Urban Development’s Office of Policy Development and Research (PD&R). The opinions and conclusions expressed are entirely those of the authors and do not represent the opinions of the MacArthur Foundation or HUD.



Our previous papers on this research project

- Analyzed reverse mortgage originations from 2000 to 2011 using state-level data. Explained the variations in origination rates over time & among states.
- Analyzed reverse mortgage default risk using micro level data
- Study seniors' choice of how to withdraw equity from their home (if at all), comparing cash-out refinancing of a first mortgage, obtaining a home equity loan, obtaining a second mortgage, or obtaining a reverse mortgage. We use data aggregated to the zip code level.

- Today's paper: use micro data to study originations of reverse mortgages
 - Innovations: detailed and relatively large data set on reverse mortgages & we account for sample selection bias



U.S. Reverse Mortgages: Introduction 1

- In the U.S, the federally insured Home Equity Conversion Mortgage (HECM) comprises 95+% of the reverse mortgage market. Started in 1990, now 900,000+ originations. Lenders = small firms now, but previously included Wells Fargo and Bank of America.
- Borrowers must be age 62+. HECMs used to extract equity from their home through a mortgage that does not become due until the last borrower terminates the mortgage:
 - No repayments of the loan are required until the loan terminates. Money borrowed, plus associated interest and fees, are added to the balance due, which grows over time.
 - Termination =sell the home, move out, die, or refinance
 - Borrower obligations: live & maintain the home, pay property taxes/homeowners insurance



U.S. Reverse Mortgages: Introduction 2

- The percentage of the house value that can be borrowed (Principal Limit Factor) = a function of borrower's age (+) and the loan's interest rate (-). Typically 60%-70% of house value.
- The house value = the lesser of the appraised value of the property or the maximum loan amount for that area of the U.S. (currently \$625,500 nationally),



Reverse Mortgages: Introduction 3

- Before April, 2015 there were NO risk-based credit criteria for obtaining a HECM. Only criteria = age and sufficient home equity
- Withdrawal method is a choice by the borrower. Options include:
 - Line of Credit. The unborrowed line of credit grows at the rate of HECM interest + mortgage insurance premium. These funds are available for future borrowing.
 - Tenure or Term (similar to an annuity)
 - Lump Sum Distribution at initiation
- Borrowers must pay off all existing loans that use the home as collateral at the time of origination, and all tax liens on the house.
 - Result = high initial lump sum withdrawal, NOT used as a supplement for Social Security or pension income



Reverse Mortgages: Termination

- Upon termination the home equity equals the property value (appraised or sale) net of transaction costs incurred in its sale, less the balance on the reverse mortgage.
 - If positive, equity is owned by the borrower (or heirs). The borrower or heirs can remain in the property by paying off the HECM debt.
 - If negative, no recourse by lender or HUD. Senior has no risk.
 - When the loan balance reaches 98 percent of the MCA, the lender generally sells the mortgage to HUD at face value. HUD holds and services the note until termination.
 - Loss is owned by the U.S. Dept of Housing & Urban Development and insured by FHA. Borrowers are charged a mortgage insurance premium, which has varied a lot over time and across HECM products



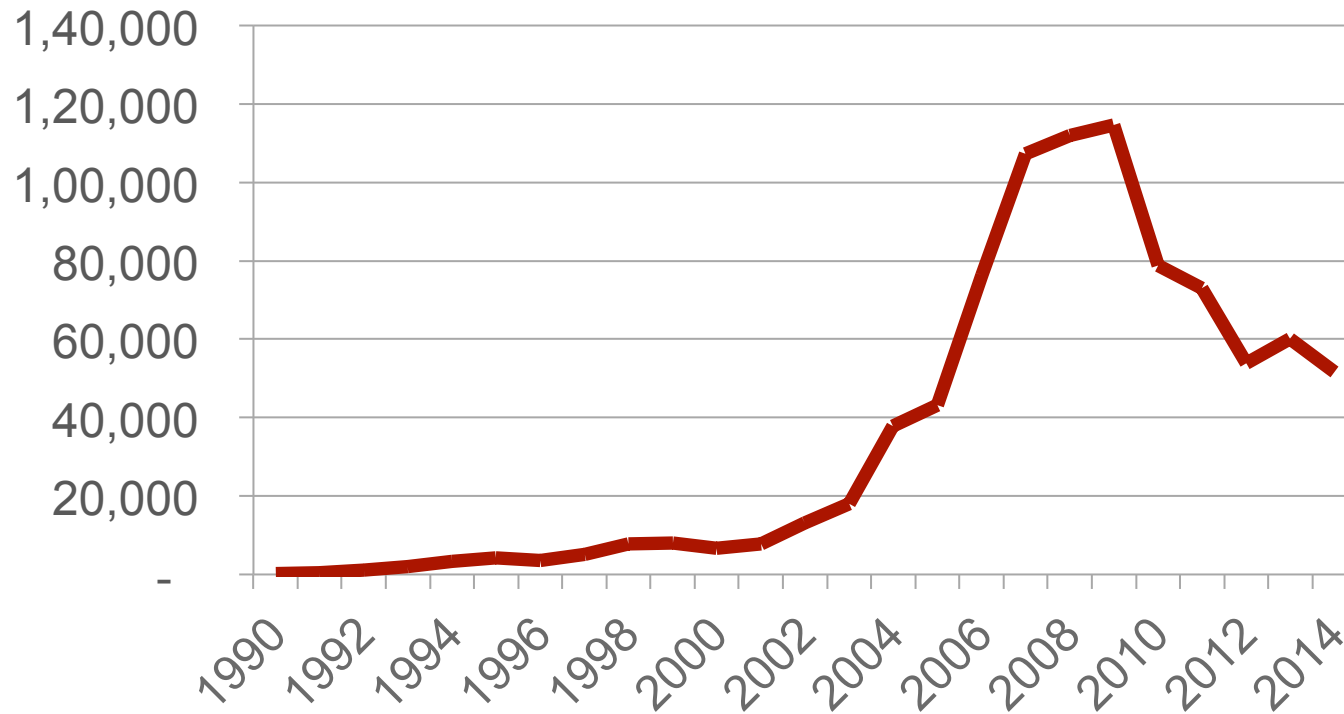
Reverse Mortgage: Risks

- “Crossover” risk = loan amount is greater than house value at termination
 - House price risk: crossovers were substantial during the house price bust as there were many originations during the price boom.
 - Longevity risk: borrowers maintain the loan longer than expected & mortgage interest rate exceeds house price inflation
- Home maintenance risk = although normal maintenance is required by the contract, it is difficult to enforce
- Mortgage default risk = borrowers fail to pay property taxes or insurance, which requires HUD-specified lender reactions (personnel time and funds)
 - “Headline risk” = evict a 98 year old widow and resulting “bad press”.



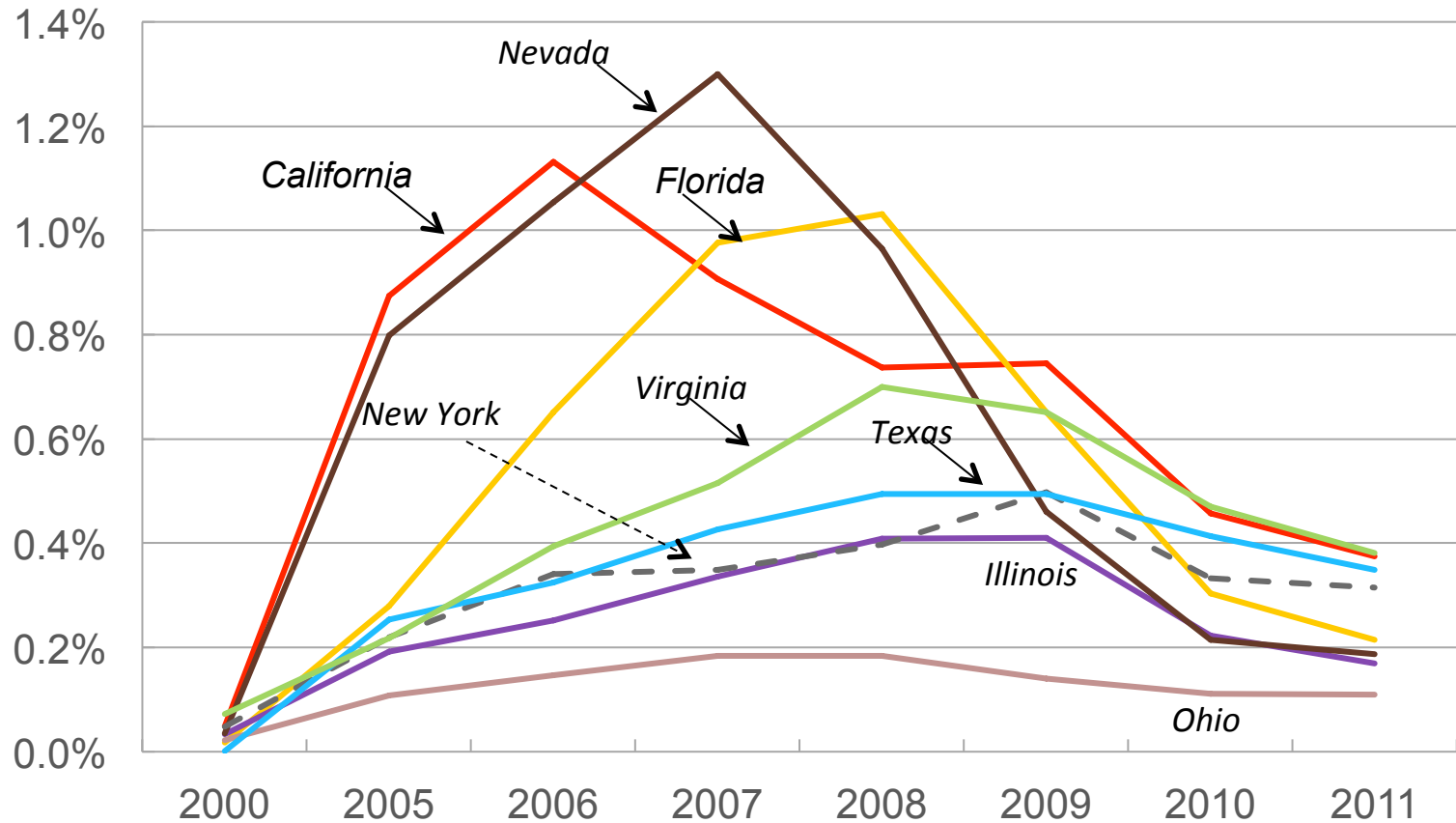
Descriptive Statistics of the HECM Market

Number of HECMs by Year



Source: Author's calculations from HUD HECM data

HECM Originations by State: 1991-2013, % of Senior Population



Source: Author's calculations from HUD HECM data



The Demand for HECMs

- The expected growth of HECM originations has been high :
 - Surveys indicate most U.S. seniors want to age in their owner-occupied home, until medically unable to cope
 - Seniors have a substantial amount of home equity (\$3.4 trillion currently), and it is high relative to their income (“home equity rich but cash poor”)
 - No underwriting criteria for HECMs up to 2015
 - Some seniors cannot meet lender requirements for cash-out refis or HELOCs thus would turn to HECMs
 - There are a lot of seniors in the U.S. and the number is growing (2010 about 40 million age 65+; in 2050 about 88 million)
- But HECM originations are low; cumulative penetration = 2% of seniors



Big Picture: Why Hasn't Demand Grown Faster?

- Seniors shy away from complicated financial instruments
- Seniors misunderstand HECM's characteristics (Tom Davidoff's survey). Only 50% have correct knowledge about HECMs
 - Think that the borrower owes the lender if the house is underwater—failure to understand the “put option”
 - Think that there are credit quality requirements for origination
- The product has a bad reputation
 - Swedish study indicates it is perceived to carry a negative stigma
- The combination of relatively high origination costs and a low expected length of stay in the dwelling makes HECMs “expensive”
- There is a strong desire by many seniors to leave a bequest, often in the form of a house (& the children want to inherit funds and convince their parent not to get a HECM)
- Seniors have a demand for precautionary savings—especially for possible future health expenses



A Test of One Demand Factor (Haurin, Moulton, et al. 2015)

- HECMs insure against falling house prices,
 - Demand should be greatest in states where house prices were relatively high compared to their long-term average and had a history of volatility.
 - Justification: If get a HECM at the peak, don't have to worry about future reduction in house prices.
 - Our first paper in this research program found strong evidence in favor of this hypothesis using state-level aggregate data.
 - Post 2007, this reason for obtaining a HECM disappeared and HECM originations have remained low.



Current Study: Two Research Questions

- **Which household characteristics are associated with the decision to seek and originate a HECM?**
 - No one has used household level data to study this question
- **How does the information provided through mandatory counseling affect the decision to originate a HECM?**
 - We study a policy change, two sources of added information:
 - Financial Interview Tool (FIT)
 - Benefits Check-Up (BCU)

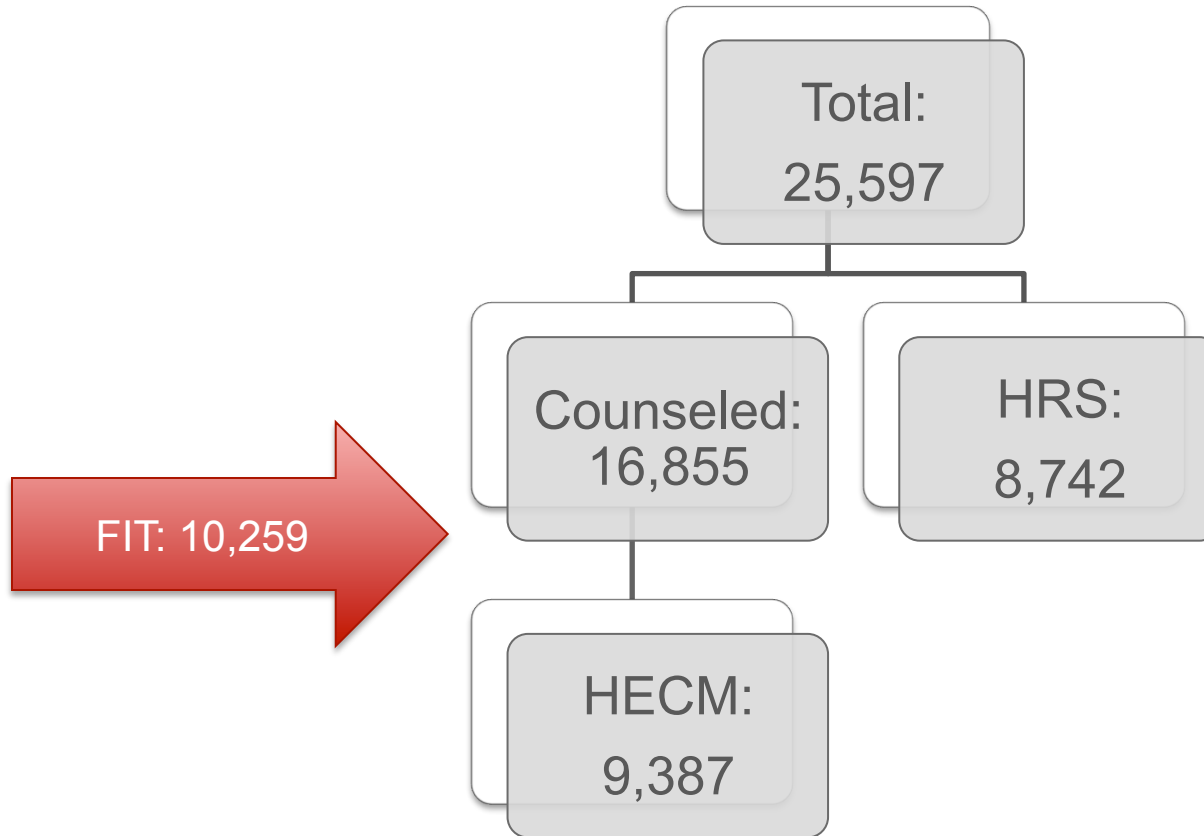


Data

- CredAbility = a HUD approved counseling agency
 - They collected demographic and economic variables during the counseling session:
 - Collected full credit reports (before and after counseling)
 - NCOA's Financial Interview Tool (FIT) data after October 2010
- HUD's private HECM loan performance data.
 - Counseling data was matched to HUD data.
- U.S. Health and Retirement Study (HRS). Nationally representative data on seniors.
 - 2010 survey wave provides a control group, (at least one household member 62+); no one in our HRS sample has a HECM
- These data are weighted resulting in a nationally representative sample of seniors



Sample sizes for this study





Summary Characteristics: Seniors Age 62+, Weighted Data

| | Full Sample | Counseled | HECM |
|--------------------------------------|-------------|-----------|-----------|
| | Mean | Mean | Mean |
| <i>Demographic Characteristics</i> | | | |
| African American | 0.092 | 0.151 | 0.116 |
| Unmarried male | 0.135 | 0.176 | 0.159 |
| Unmarried female | 0.351 | 0.399 | 0.408 |
| Age, youngest household member | 70.43 | 71.38 | 71.76 |
| <i>Household Financial Position</i> | | | |
| Monthly Income \$ | \$3,650 | \$2,340 | \$2,400 |
| Current Mortgage payment, monthly \$ | \$346 | \$450 | \$436 |
| HELOC indicator (0,1) | 0.079 | 0.128 | 0.144 |
| Mortgage past due (0,1) | 0.019 | 0.061 | 0.043 |
| <i>Home Equity</i> | | | |
| Home equity, amount \$ | \$127,470 | \$168,600 | \$185,250 |



Model: Bivariate Probit Accounting for Selection

A household's selection into counseling, C_i , is modeled as

$$C_i = \begin{cases} 1 & \text{if } X_i \beta_1 + S_i \gamma + u_{1i} > 0 \\ 0 & \text{otherwise} \end{cases}$$

$HECM_i = 1$ indicates that the household originates a HECM. $HECM_i$ is observed only if the person is counseled: $C_i = 1$.

$$HECM_i = \begin{cases} 1 & \text{if } X_i \beta_2 + F_i \delta + T_i \alpha + u_{2i} > 0 \\ 0 & \text{if } X_i \beta_2 + F_i \delta + T_i \alpha + u_{2i} \leq 0 \end{cases}$$

X = variables included in both C_i and $HECM_i$

- hhld demographics, income, debt, prior mortgages, past due indicators

S = variables unique to C_i

- home equity amount, negative equity indicator

F = policy indicator for after October 2010, unique to $HECM_i$

- policy dummy, FIT components, and BCU

T = variables unique to $HECM_i$

- estimated net IPL, excess value, credit score & credit report indicators



Bivariate Probit Results (Coefficients of Selected Variables)

| | Get | |
|------------------------------|------------|------------|
| | Counseling | Get a HECM |
| African American | 0.256** | -0.361** |
| Unmarried male | 0.080** | -0.145** |
| Education, some college | 0.079** | -0.056* |
| Monthly mortgage payments | 0.060** | -0.079** |
| Mortgage past due, 2+ months | 0.562** | -0.469** |
| Home equity, amount | 0.0008** | |
| Estimated net loan amount | | Not Signf |
| Home value above limit | | -0.0004** |
| FICO credit score | | 0.0007** |
| Foreclosure started | | -0.115* |
| FIT indicator | | -0.067** |
| Observations | | 25,597 |
| Rho (Counseling, HECM) | | -0.870** |

** p<0.01, * p<0.05

- Race, gender, education, and mortgage amount and being past due affect whether to get counseling, then moderate the probability of getting a HECM
- Home equity drives into counseling, and “excess” home value (above MCA) deters HECM take-up
- The policy change (FIT) to counseling had a negative impact on HECM take-up



Total “Marginal Effects” from the Bivariate Probit

| | FIT and Benefit Check Up | |
|-------------------------------|--------------------------|----------------|
| | <u>ME</u> | <u>ME/mean</u> |
| African American | 0.0021** | 1.126 |
| <200% Poverty | 0.0015** | 0.813 |
| Home equity, amount (\$000) | 0.00001** | 0.008 |
| FICO credit score | 0.000004** | 0.003 |
| Had a HELOC | 0.0054*** | 2.872 |
| Tax lien or judgment | -0.0004** | -0.242 |
| Monthly Mortgage Payment(000) | 0.0005*** | 0.265 |
| FIT indicator | -0.0001 | -0.055 |
| FIT*Benefits Check-Up | -0.0004** | -0.253 |

The mean take-up rate for HECMS is 0.00188 per year = 1 in 530 seniors.

FICO: 100 point ↑ raises the probability of obtaining a HECM by about 30%.

Home equity: \$100,000 ↑ raises probability by about 50%

Mortgage payment: \$1,000 ↑ raises probability by about 25%



Conclusions of this component of our research

- Greater HECM originations by
 - House rich--cash poor seniors
 - Those with larger mortgage payments, especially those past due
- HUD's mandatory counseling moderates the relationship between household characteristics and take-up
 - Provides additional information about alternative programs
- Policy changes in 2010 to the information provided through counseling is associated with decreased HECM take-up
 - Primarily attributed to additional information provided through suggesting seniors tap other sources of public and private benefits



- Thank you!

Presenter: Donald Haurin
Department of Economics
Ohio State University
Email: haurin.2@osu.edu

Lenders in the HECM Market

- Wells Fargo and Bank of America exited the market in 2011 (previously comprised over 40% of the market combined)- they wanted to assess borrower's ability to pay T&I

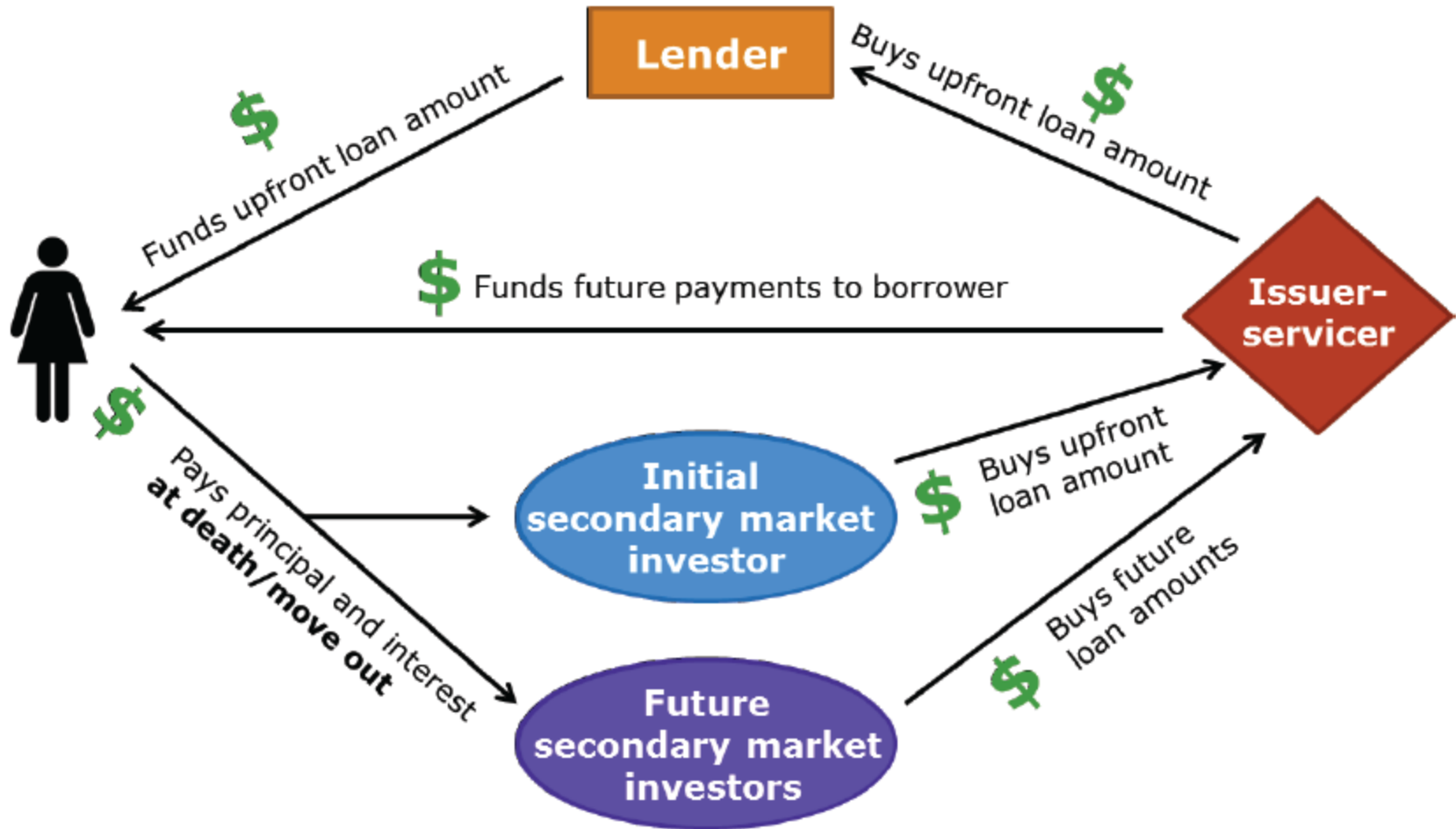
2014 Production

| Rank | Lender | Loans Month | Loans YTD | % Market Share | % change Month | % change YTD |
|------|-----------------------------------|-------------|-----------|----------------|----------------|--------------|
| 1 | AMERICAN ADVISORS GROUP | 1,162 | 12,169 | 23.51% | 11.73% | 64.16% |
| 2 | ONE REVERSE MORTGAGE LLC | 540 | 4,952 | 10.93% | 45.95% | -8.38% |
| 3 | RMS/SECURITY ONE LENDING | 497 | 5,107 | 10.06% | 18.9% | -32.23% |
| 4 | URBAN FINANCIAL OF AMERICA LLC | 344 | 3,349 | 6.96% | 19.44% | -15.28% |
| 5 | LIBERTY HOME EQUITY SOLUTIONS INC | 271 | 4,660 | 5.48% | -13.69% | -30.07% |
| 6 | REVERSE MORTGAGE FUNDING LLC | 215 | 1,077 | 4.35% | 31.9% | |
| 7 | PROFICIO MORTGAGE VENTURES LLC | 159 | 1,737 | 3.22% | 19.55% | -31.78% |
| 8 | LIVE WELL FINANCIAL INC | 133 | 951 | 2.69% | 11.76% | 1,278.26% |
| 9 | MAVERICK FUNDING CORP | 104 | 802 | 2.1% | -9.57% | -1.96% |
| 10 | GENERATION MORTGAGE COMPANY | 69 | 1,438 | 1.4% | -5.48% | -42.59% |

Securitization of HECMs

- Currently, most of the HECM securities are issued by Ginnie Mae (HMBS). Fannie Mae left the market in October 2010.
- HMBS are accrual securities; at the end of each month, interest earned is added to the principal of the HMBS. (CMOs created out of HMBS are called HREMIC securities). Because the available principal can be drawn over time, a single HECM loan can be divided into multiple HMBS- depending on the timing of withdrawals. And, a single HMBS can be made up of multiple HECM loans. Pricing in the HECM market is based on a prepayment curve.
- Reverse mortgage securities function similar to zero coupon bonds, with an uncertain maturity. Typically ends with sale of the home, or when loan reaches 98% threshold (or events that cause HUD to assume the loan, or foreclosure).
- There are \$100 billion in HECM loans outstanding and HMBS securitization exceeds \$40 billion

Figure 36: Ginnie Mae securitization model



Source: CFPB 2012