

What (the Heckm) is a HECM?

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Abstract

Home Equity Conversion Mortgages (HECMs) are loans made to senior borrowers against the value of their home. The Federal Housing Administration (FHA) insures HECMs through Mortgage Insurance Premiums (MIPs) paid by borrowers. The HECM fund is currently underfunded.

Premiums have recently been increased so we created a model to simulate the gains and losses of the HECM fund under its current population and the new premiums. It allows the user to test FHA liability by adjusting assumptions to simulate different borrower profiles, drawdown strategies, FHA regulation changes, and economic environments.

Introduction

In HECM loans, there can be variability between how much a borrower borrows and how much they repay.

The FHA guarantees borrowers do not need to repay more than their sold home value (FHV) and that lenders receive the full value of the loan back, funded by borrowers' Mortgage Insurance Premiums (MIPs). Actuarial valuations show the HECM fund to be negative \$13.8 billion. Are recent changes in Mortgage Insurance Premiums (MIPs) structure enough to offset the loss?

We ultimately created a model where a user can adjust many assumptions which impact the fund's solvency.

Methods

If $FHV > \text{Amount Borrowed}$:

No FHA claim

FHA gain = Mortgage Insurance Premium (MIP)

If $FHV < \text{Amount Borrowed}$:

Claim = Amount Borrowed - FHV

FHA gain/loss = MIP - Claim

The model uses the most recent HECM public database, data collected through 2011 by the US Department of Housing and Urban Development (HUD). It has 964,000 HECM borrower records and 54 columns including:

Age at origination

Home value at origination

Count of years the loan is active

Annual cash draws over 22 years

We then calculated each borrower's FHV, amount borrowed, and MIP. We then averaged by age and by home value (HV) intervals to find FHA claim and gain/loss.

Results

Modeling Drawdown Strategy

The user can adjust years of deferral with **Deferral Assumption, q_b** , to emulate borrowers who defer drawdown to grow credit capacity over time.

Modeling FHA Regulations

The user can adjust MIP structure in **MIP Assumptions**.

Upfront MIP, a percent of borrower's HV

Ongoing MIP, a percent of borrower's ongoing balance

Results continued

Modeling Borrower Profiles

The user can fluctuate HV ranges' probabilities of originating a HECM with **Origination Assumption, q_b** , to establish the impact of profiles.

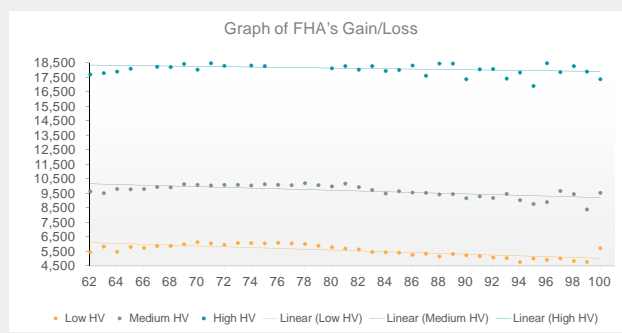
Profile	Home Value (HV) Range(s)	Origination Assumption, q_b
"Desperate Borrower"	Low HV: HV \$150K	Most likely to originate a HECM
"House Rich Borrower"	Medium HV: \$150K < HV \$300K	Less likely to originate a HECM
	High HV: \$300K < HV \$1 M	Least likely to originate a HECM

Modeling Economic Environment

Interest Rate Assumptions: The user can adjust the interest rate loans grow at and the index MIPs collected grow at.

Home Price Appreciation (HPA) Assumptions: The user can adjust the factor which decreases FHV for HECM status, HPA which adjusts HV to FHV, and the economy's state as recession, boom, or constant.

Under a scenario with zero years of deferral, new MIPs, pre 2011 population and current Economic Environment:



Discussion

Under the above scenario:

The FHA gains under all HV ranges and all ages.

FHA gain decreases with age: the older the borrower the less time there is to collect ongoing MIP.

The FHA makes a larger gain on High HVs than Medium HVs than Low HV: upfront MIPs are based on HV.

Over time, new premiums may offset past underfunding.

Other scenarios: With appropriate assumptions, we were able to emulate loss as seen in 2009. The model allows the user to assess the fund's solvency under many other plausible scenarios.