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BASELINE’S APPROACH TO HMSR VALUATION

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BASELINE REVERSE

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Reverse Mortgage Servicing Rights represent a company's contractual rights to service a loan in exchange for certain specific fees. Reverse mortgage servicers are responsible for advancing funds to borrowers with scheduled monthly payments, funding borrower requests for subsequent draws, tracking and processing loan balance payoffs, handling customer and investor questions and requests, and remitting cashflows to investors, among other things. Servicers are also responsible for working with the borrower to cure loan delinquencies if borrowers move out, fail to pay taxes or insurance, or otherwise default on a reverse mortgage. If a delinquency cannot be cured, servicers are responsible for calling the loan Due and Payable, foreclosing on, and selling the property against which the loan is written.

Baseline's role, as a leading independent reverse mortgage valuation firm, is to forecast all servicing related cashflows, and determine a fair value by discounting these cashflows at prevailing market rates. This scope of this white paper is limited to FHA Home Equity Conversion Mortgages ("HECMs"), which have been securitized in Ginnie Mae HECM Mortgage Backed Securities ("HMBS"), and their related Servicing Rights ("HMSR").

SERVICER RIGHTS AND OBLIGATIONS DURING LOAN LIFE

HECM servicers will have certain obligations and rights as follows:

Servicer Cashflow Obligations on Borrower Behalf

- MIP advances: Servicers are required to advance Mortgage Insurance Premiums to FHA each month. MIP advances are added to the outstanding loan balance as they are disbursed.
- Subsequent draw advances: Many HECMs are open-ended, allowing borrowers to repay or draw additional funds over the life of the loan. The servicer is required to advance any available funds requested by the borrower. These advances are added to the outstanding loan balance as they are made.
- LESA Advances: Some HECMs have a "Life Expectancy Set Aside" wherein a portion of a borrower's principal limit is set aside to help borrowers pay their tax and insurance obligations. Depending on the type of LESA (full vs partial), HECM servicers will either advance funds directly to the borrower every 6 months, or to the relevant taxing or insurance entities as funds become due. As these funds are advanced, they are added to the outstanding loan balance.
- Repair set aside advances: Under certain scenarios, HECMs may be written on properties in need of minor repair. In these instances, loans are funded with a "Repair Set Aside." At origination, repair set aside balances reduce the principal limit available to the borrower, but are not part of the loan balance. Once required repairs are completed, the servicer advances funds to cover the cost of the repairs, adds the advances to the outstanding loan balance, and removes the Repair set aside from the loan.
- Scheduled monthly payment advances: Some HECMs entitle borrowers to monthly payments from the reverse mortgage servicer. In these cases, the servicer must advance the scheduled payment each month, and add the advance to the outstanding loan balance.

Servicing Revenues

For performing servicing tasks, servicers may be compensated as follows:

- Servicing Strip: Ginnie Mae requires HMBS issuers to retain a servicing strip when securitizing principal balances in HECM loans. As an example, a 5.06% note rate with a .36% servicing strip would result in a 4.70% coupon HMBS bond. In this case, the 36bps strip is owned by the servicer as compensation for performing all servicing tasks.
- Stated Monthly Servicing fees: HECM servicers may charge borrowers a stated monthly servicing fee. In these cases, a predetermined dollar amount (ie $30) will be added to the outstanding loan balance each month as compensation to the servicer.

Monetization of Servicing Revenues

Since reverse mortgage borrowers are not required to make monthly payments, the servicing revenues described above are simply accruals, not actual cash flows. To monetize servicing accruals, HMBS servicers create "tail pools," comprised of all advances and servicer accruals described above.

An example $300,000 loan with a 36bps strip:

- Servicing Strip accrual: $90 (300,000*.36%/12)
- MIP advances: $312.50 (300,000*1.25%/12)
- Subsequent draw advances: $10,000
- LESA Advances: $150
- Repair Set aside advances: $7,500
- Scheduled Monthly Payment: $50

Loan Tail Pool Contribution: $18,552.50

The servicer would create a new HMBS security (a tail pool), for all advances made on all loans in the portfolio. Our example loan above would account for $18,552.50 of the tail pool balance. Importantly, the total cash received by the servicer for the $18,552.50 balance would likely NOT equal $18,552.50. The newly created HMBS tail pool would trade at current market pricing, which would likely be at a premium, though could also be at or below par, depending on HMBS loan composition and market rates. Any premium earned on the tail pool belongs to the servicer. For example, if the tail pool trades at 103-00, the servicer would receive $19,109.08 upon pool settlement.

To appropriately forecast performance, Baseline has developed robust proprietary prepay and draw vectors. Each month, Baseline analyzes the performance of every HECM loan ever securitized. Baseline looks for performance trends at universe, cohort, and loan level. Through this analysis, several key loan level attributes have proven to be historically good predictors of loan performance, and these findings serve as the basis for our loan performance projections.

Servicing Expenses

Servicers have costs associated with performing all servicing functions including:

- (Sub)servicing expense: If servicing functions are handled by the servicer in-house, they suffer the burden of software, regulatory, employee, and other expenses directly. In the HECM servicing market, reverse mortgage servicers more commonly outsource loan servicing work to a subservicer. Subservicers handle the work on behalf of a servicer, usually for a stated monthly fee per loan. Typically, subservicers will vary the cost per loan by status, and add fees for certain tasks. These fees need to be accurately forecast to determine a reasonable HMSR valuation.
- Interest shortfall: HMBS security holders are entitled to cashflows (principal and interest) on their bonds any time a borrower repays a loan. Regardless of the timing of a loan payoff (first day of the month, last day of the month, etc), Ginnie Mae investors are entitled to a full month of interest accrual. Borrowers, on the other hand, are only responsible for interest on the loan through the date of payoff. This creates an expense as HMBS servicers are responsible for funding the difference between the partial month loan balance accrual and the full month coupon rate. This is a pure loss to the servicer, not recoverable by HUD claim.
- G-fee advances: Servicers are required to advance Guarantee Fees to Ginnie Mae each month for all loans in Ginnie Mae HMBS securities. The cash is advanced by the servicer, at servicer's expense
- Loan losses: Servicing a HECM portfolio exposes the servicer to risk. In several scenarios, the servicer can be exposed to significant losses from loan servicing, depending on the scenario under which a loan terminates.

LOAN TERMINATION PATHS AND LOAN LOSSES

A loan may terminate from a reverse mortgage servicing portfolio for any of the following reasons:

- Borrower Prepay: HECM borrowers have the option, but not the requirement, to repay their loan at any time without penalty. If this repayment happens before the loan balance reaches 98% of the max claim amount, it is considered a prepayment. When a loan is paid in full, a servicer does not suffer any loan losses other than the interest shortfall described above.

- 98% Assignment: If a loan is in an active status when the loan's balance reaches 98% of the Max Claim Amount (the lesser of the appraised value at origination and the lending limit) it may be assigned to FHA. A servicer does not suffer loan losses when an active loan is assigned to FHA.

Servicers suffer loan losses when loans become delinquent. HECMs become delinquent and can be called "Due and Payable" if any of the following occur:

o Death of the last surviving borrower
o Borrower moves out
o Borrower fails to pay their tax or insurance obligations

If a loan is called Due and Payable and the borrower, or the borrower's heirs, are unable or unwilling to pay off the loan balance, a HECM servicer must initiate the foreclosure process. Once foreclosure is complete and the servicer obtains title, the servicer is responsible for selling the property. After

foreclosure, servicers may file a claim with HUD to recover a portion of losses on most loans. The portion of losses recovered varies by claim type.

- Sale Based Claim: If the Servicer sells the property in the first six months following successful acquisition of title, a Sale Based Claim ("SBC") may be filed with HUD to recover the difference between the sales price of the property and the outstanding loan balance. Servicers are permitted to include realtor commissions in SBCs, along with a significant portion of corporate advances. Loan losses in SBC scenarios are relatively small, as HUD will reimburse most servicer advances in full.

- Appraisal Based Claim: If the property is not sold within six months of foreclosure, a second appraisal is obtained and an Appraisal Based Claim ("ABC") is filed with HUD. With an ABC, the servicer recovers the difference between the second appraised value and the outstanding loan balance. However, the servicer must still dispose of the property, and from this point on all losses are borne entirely by the servicer. If the property is sold for less than the value of the second appraisal, the servicer will recognize that loss in its entirety. They will also lose all monies advanced for tax, insurance, HOA, or other purpose to protect first lien position.

- Debenture Interest: Under most scenarios, claim payments will include a provision for debenture interest, provided the servicer complied with all HUD servicing guidelines and met all required timelines. If a servicer deviates from the servicing guidelines or misses a timeline, their debenture interest receivable is subject to curtailment.

Baseline applies loan level delinquency vectors developed by analyzing historical loan performance data. Every loan is modeled to go through each of the disposition paths described above with certain probabilities and timelines applied to each path.

SUMMARY – IT'S ALL ABOUT THE ASSUMPTION SET

To appropriately determine fair value of an HMSR portfolio, it is important to accurately project servicer advances, servicer revenues, tail pool balances, tail pool premiums, servicing expenses, and loan losses using the most robust assumption set possible. A single bad assumption could materially affect fair value estimates, leading to improper accounting marks, inaccurate pricing for new production, or poor decisions regarding the purchase or sale of a portfolio.

At Baseline, we believe an HMSR model is only as good as the assumption set, so we spend considerable time and resources to ensure our clients have access to the most accurate, up to date assumption set possible. As the industry changes, assumptions need to change accordingly.

For more information on assumption set construction, performance modeling, or servicing valuation best practices, see contact below.

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