

**Analysis of Impact of a National Loan Limit
in the Home Equity Conversion Mortgage Program**

**Prepared for:
National Reverse Mortgage
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**Prepared by:
Noel Abkemeier, FSA
Milliman USA**

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Analysis of Impact of a National Loan Limit in the HECM Program

Milliman USA was engaged by the National Reverse Mortgage Lenders Association to analyze the impact of changing the loan limits for the Home Equity Conversion Mortgage Program (HECM) from local lending limits to a national loan limit.

Background

The Home Equity Conversion Mortgage Program that is run by the Federal Housing Administration (FHA) is a reverse mortgage program that is intended to facilitate and encourage development of the reverse mortgage market. One of the characteristics of the program is the use of FHA 203(b) local lending limits in determining the loan limit (maximum claim amount). Congress mandated a study of the HECM program in the American Homeownership and Economic Opportunity Act of 2000 (Pub.L. 106-569, 12/27/2000), including a requirement to evaluate the impact of replacing the local limits with a single, national loan limit.

In response to the Congressional request, a report entitled *Refinancing Premium, National Loan Limit, and Long-Term Care Premium Waiver for FHA's HECM Program* was prepared for the U.S. Department of Housing and Urban Development Office of Policy Development and Research by Abt Associates, Inc. in May, 2003. That report included an estimate of the impact upon the current fund balances of the HECM program if the program had utilized a national loan limit. Our analysis extends that study to provide a measure of the long-term impact of using a national loan limit.

Executive Summary

This report evaluates the impact of changing the maximum claim amount under HECM from local limits to a national limit set at 87% of the Fannie Mae limit. The current structure of the HECM program contains a 52% margin in the mortgage insurance premiums (MIP) and this would be reduced to 47% if the national limit were introduced and the profile of the borrowers did not change. If the historic level of borrowers with appraised home values above the loan limit were continued because of the entry of additional borrowers with homes appraised above the new limits, the current margin of 52% would be continued. In either case, the financial basis of the HECM program is maintained at a strong level.

A change to a national loan limit expands the program to a broader range of purchasers in low housing cost areas. This can increase the share of loans in the middle income market, which could include more homes with stronger price appreciation potential. This would decrease potential claims and improve the financial basis of the program.

The broader availability of reverse mortgages and the ability of lenders to market the program on a consistent basis in all areas can lead to increased utilization of HECMs.

This could expand the HECM program 15-20%, first on a catch-up basis and then on a continuing annual basis.

Overview of May 2003 Report

The May 2003 Report provided an update of the financial status of the HECM program and a parallel profile of what the status would have been had there been national loan limits from the inception of the HECM program. The national loan limits evaluated were 87% of the Fannie Mae and Freddie Mac limit and 100% of that limit. The 87% limit corresponds to the FHA maximum and will be the basis considered in the evaluation that follows. The method of evaluation, results, and limitations of the evaluation are discussed below.

Method of Evaluation

The 52,000 loans that were originated since the beginning of the HECM program were modeled based upon their borrowing history, filed claims, payment of mortgage insurance premiums (MIP), and projection of claims and MIP to the ultimate termination of the loan. The basic model was a deterministic model in which a single set of mean assumptions was used to project future experience, particularly as it related to housing price increases and loan interest rates. This was a continuation of the modeling in prior reports, but it also contained refinements in annual borrowing patterns, termination rates, and mortality levels.

The result of using the deterministic model with all loans made during the history of the HECM program was an estimate of the current program surplus (actually expressed as a negative liability). The surplus consists of MIP minus claims accumulated to August 2001, plus the present value of future MIP, and minus the present value of future claims.

A second model was introduced in which the home price increase and loan interest rates were varied annually within each of 250 scenarios that were produced on a stochastic (Monte Carlo) basis. This stochastic model could be viewed both as a sensitivity test of the basic model and as the probable base model for future evaluations. A limited comparison in the report between the two models when assumptions about home price increase and interest rates were similar in the two models suggested that the deterministic model provides a reasonable approximation to the stochastic model results.

Reported Observations

The report indicated the level of the HECM program surplus as of August 2001, both on a current program basis and assuming a national loan limit had applied from inception. This was done on both a deterministic basis and a stochastic basis. The results are profiled in the following table.

| Surplus Measures in May 2003 Report as of August 2001 | | | |
|--|----------------------|-------------------|----------------------|
| Method | Deterministic | Stochastic | Deterministic |
| Assumed Interest | 7.8% | 5.5% avg. | 5.8% |
| Assumed Home Value Increase | 3% | 3.5% avg. | 3% |
| <i>Surplus in HECM Program (\$million)</i> | | | |
| Current Program | \$54.0 | \$244.9 | \$234.6 |
| National Loan Limit at 87% of FNMA | 37.1 | 248.8 | 239.0 |
| Cost of 87% National Loan Limit | 16.9 | (-)3.9 | (-)4.4 |
| <i>Surplus per Loan Originated</i> | | | |
| Current Program | \$1,039 | \$4,710 | \$4,512 |
| National Loan Limit at 87% of FNMA | 714 | 4,785 | 4,596 |
| Cost of 87% National Loan Limit | 325 | (-)75 | (-)84 |

The analysis on the deterministic basis with 7.8% interest and 3% home value growth was structured to be consistent with the assumptions in the previous study; consequently, the assumptions were a bit dated. The stochastic analysis reflected best estimate current assumptions. The deterministic basis with 5.8% interest and 3% home value growth is presented to show that there is general consistency between the deterministic and stochastic results when there is consistency in key assumptions.

The results with the deterministic 7.8%/3% approach and the stochastic 5.5%/3.5% approach are vastly different, both on the aggregate and per loan bases, and clearly suggest the high sensitivity of results to the choice of assumptions. Not only do the measures of current surplus differ greatly, but also the deterministic approach showed a cost for moving to a national loan limit while the stochastic approach showed a mild gain.

The model is sound and the results properly address the issue of the financial balance of the HECM program. The report additionally recognizes that any user of the report will have to make some judgments on assumptions before making their own interpretation.

Analysis of the Cost of an 87% National Loan Limit

Our analysis is focused on utilizing the contents of the May 2003 Report in order to more closely identify the impact of moving to a national loan limit. The best measure for determining long-term cost is to measure the impact per loan, which can then be projected over any volume of loans. The May 2003 Report forms a foundation for such an analysis; however, it has some limitations that require interpretation.

- The data include a majority of loans (approximately 90%) that were placed when interest rates were near or above their long-term average (i.e., the 1-year Treasury rate was at least 4.5%, which is 1.5% below its long-term average of 6%). This segment of loans has low principal limits because of the high level of interest that was assumed at the origination of the loan; however, the stochastic analysis realistically recognized a starting rate of the then-current 1-year Treasury rate of 2.35%. The combination of high initial interest and low actual interest is a very favorable convergence of events that will minimize actual claim experience.

- The loans issued in the last six months prior to the study date utilized initial 1-year Treasury rates between 3.25% and 4% but were projected to incur interest that on average would be consistent with a Treasury rate of approximately 4.1%. These are mildly unfavorable circumstances, and this offset only a minor part of the favorable results described above for loans placed in a high interest environment.
- The estimates of surplus are heavily dependent upon and very sensitive to the projected growth rate in home value; however, there do not seem to be available data to determine the rate for homes within the HECM program. A single growth rate is used for all homes, although growth rates actually vary by geographical area. The assumed rate was set at 60% of the national rate of increase in home value under the assumption that the homes on average are in weaker housing markets and that the typical HECM user (characterized on average as a 75 year old female living alone) may lag in maintaining and updating the home. The choice of 60% may be a good estimate, but in any case its subjective nature is an indication of the uncertainty inherent in the results.
- The current 1-year Treasury rate is 1.28%, which makes it probable that interest rates over the life of a new loan will be higher than assumed at origination of the loan. This relationship maximizes claim costs; consequently, the model aggregate results are too optimistic to impute to currently placed loans.
- All surplus estimates were calculated as of August 2001. For purposes of estimating long-term costs and their relationship to MIP premiums, it is necessary to adjust the surplus to its present value at the initiation of the loan. We estimate that the average loan was approximately four years old and that the present value of surplus at origination was 80% of the value shown as of August 2001.

Method to Estimate National Loan Limit Costs

Although the stochastic analysis is superior to the deterministic analysis, it is necessary to draw upon the deterministic results because only they have been prepared with a range of assumptions that can cover possible situations. The comparison, shown earlier, of the stochastic results and the deterministic results with 5.8% interest and 3% home value growth suggest that this will provide reasonable estimates.

The May 2003 Report presented deterministic results for an array of interest rate and home value growth rate combinations for both the current loans and the estimates with the 87% Fannie Mae limit (Exhibits 2-7 and 4-7a). We have converted these to a per loan basis (52,000 loans) and adjusted them to present values at origination of the loan (20% reduction), and have shown them in the following table.

| Present Value of Surplus per Loan at Loan Origination For Various Interest Rates and Home Value Increase Rates | | | | |
|---|-----------------------------------|-------------|-------------|-------------|
| Assumed Home Price Growth | Assumed Loan Interest Rate | | | |
| | 5.8% | 6.8% | 7.8% | 8.8% |
| <i>Local Loan Limits</i> | | | | |
| 2% | \$2,803 | \$1,340 | \$ (-)797 | \$ (-)3,654 |
| 3% | 3,609 | 2,591 | 831 | (-)1,712 |
| 4% | 4,051 | 3,551 | 2,292 | 171 |
| 5% | 4,171 | 4,095 | 3,445 | 1,889 |
| <i>87% National Loan Limit</i> | | | | |
| 2% | \$2,769 | \$1,146 | \$ (-)1,188 | \$ (-)4,265 |
| 3% | 3,677 | 2,520 | 571 | (-)2,197 |
| 4% | 4,186 | 3,597 | 2,174 | (-)169 |
| 5% | 4,331 | 4,225 | 3,462 | 1,708 |

Appropriate combinations of loan interest rate and home price growth are selected from this table to determine cost estimates for changes in loan limits. This will be done both for best estimates and for sensitivity to changed environments.

To be put this in context, the present values of surplus must be related to the present value of anticipated premiums. The present value of anticipated premiums was estimated as the sum of (a) 2% of the median loan in 1999 (\$105,000) inflated for two years of home value growth (3.5% annually) plus the present value of annual MIP premiums, based upon the values in Exhibit 2-1 of the May 2003 Report. The annual MIP premiums were adjusted for inflation in home values over the period the data was collected and for loan terminations. The present value of premiums for the current loan portfolio profile was adjusted upward for the 87% limit case in proportions consistent with the values in Exhibit 4-8. The resultant present values of premiums are estimated to be \$4,300 with local loan limits and \$4,500 with the 87% limit.

National Loan Limit Cost Analysis

A determination of the financial significance of switching to a national loan limit requires an understanding of the level of anticipated surplus relative to anticipated premiums prior to the change, and then the impact upon that because of the change.

A critical starting point is the combination of assumed loan interest rates and assumed home price growth that is representative of an “average” environment. (In reality there is no average environment and the results of deviation from an “average” are not symmetric.)

- The average 1-year Treasury rate over the last 20 years has been 5.87% and the May 2003 Report’s assumed spread over the Treasury rate in the loan interest rate was 1.4%; however, in recent years this spread has been 1.5% for new loans. This latter spread indicates an assumed 7.35% loan interest rate as an estimate.

This rate is realistic for future loans and slightly conservative for the existing loans.

- The May 2003 Report stochastically modeled home value growth rates and produced an average of 5.6% annually, which then translated into 3.5% when the 40% assumed reduction for HECM customers was applied and modeled. This we consider to be a reasonable estimate.

Estimated surplus margins in the MIP premiums, based upon the assumption of a 7.35% long-term interest rate and a 3.5% home value growth rate are shown in the following table. These were determined by interpolation among the surplus values in the previous chart. It is recognized that no HECM administrative expenses are assumed; consequently, the developed surplus would have to be adjusted downward if it is intended to pass administrative expenses on to the HECM program.

| Gross Surplus Margins in HECM Premiums | | | | | | |
|--|------------------|------------------|-----------------------------------|--------------|-------------------------|--------------|
| 7.35% Loan Interest Rate and 3.5% Home Value Growth Assumed | | | | | | |
| | PV of MIP | Base Case | Assumed Rate Sensitivities | | | |
| | | | Interest Rate | | Home Growth Rate | |
| Loan Interest | | 7.35% | 6.85% | 7.85% | 7.35% | 7.35% |
| Home Value Growth | | 3.5% | 3.5% | 3.5% | 3.0% | 4.0% |
| <i>Gross Surplus per Loan</i> | | | | | | |
| Local Limits | \$4,300 | \$2,241 | \$2,996 | \$1,445 | \$1,623 | \$2,859 |
| 87% National Limit | \$4,500 | 2,131 | 2,974 | 1,245 | 1,448 | 2,814 |
| <i>Gross Surplus as Percent of Premiums</i> | | | | | | |
| Local Limits | | 52% | 70% | 34% | 38% | 66% |
| 87% National Limit | | 47% | 66% | 28% | 32% | 63% |

The gross surplus ratios indicate that more than half (52%) of the MIP contributes to surplus under the base case with average long-term assumptions. The shift to an 87% national loan limit moderately reduces the margin, but still leaves a considerable margin of 47% of premium. The sensitivities indicate that if the spread between the loan interest rate and the home value growth rate increases by 0.5%, the surplus margin decreases by 14-19 percentage points. Similarly, if the spread decreases by 0.5%, the surplus margin increases by 14-19 percentage points.

This indicates that the HECM premiums contain substantial margin to cover the long-term benefit costs of the program. A shift to an 87% national loan limit brings some additional cost, but still leaves significant margins. If the long term experience differs unfavorably from the assumptions by 0.5%, margins are moderately reduced but still provide a satisfactory cushion. There is no recognition of expenses, but if they range from 10-25% there still would be significant margin in the premiums.

The surplus margins shown above for the 87% national loan limit reflect the status if the current mix of borrowers had their maximum loans recast with the higher limit. In this situation, the current 30% of borrowers with appraisal values in excess of their loan limit

would be reduced to 9% with the 87% limit. If the increased limit induced a new segment of homeowners with appraisals above the new limit to take out HECM loans, this could restore the share of borrowers with excess appraisal value to again reach 30%. If this were the case, the surplus development would approach that indicated for the current local limits rather than decreasing to the amounts indicated for the 87% limit. If the higher limits in low housing cost areas allow more lending in the middle market, it may increase the share of homes that grow in value at more favorable rates. If their appreciation rate were .5% above the average rate assumed, it would increase margins by 14-16 percentage points. If the national loan limit were made available to existing HECM borrowers, their surplus development could approximate that shown for the national loan limit level.

There may be periods during which experience will fall beyond the long-term sensitivity ranges indicated above, but these will tend to balance over the long run. Loans placed in a high-interest environment have the potential for above-average surplus development, while those placed in a low-interest environment will tend to produce lower surplus.

Although it is not the focus of this paper, it appears that there could be room for restructuring the premiums for a HECM. The indicated surplus levels of 47-52% for the base case estimates suggest that there could be room for premium reductions. One concept that could be considered is to defer the front-end premium of 2% and apply it piecemeal as each additional borrowing took place. This certainly bears a cost in the deferred receipt of revenue and non-receipt of other revenue if the full potential of the reverse mortgage is not used, but the margins in the pricing suggest there is room to evaluate such an approach. This could increase the appeal of HECMs because of the reduced front-end cost and the elimination of front-end cost for loan amounts that are never taken.

Impact on HECM Program of Moving to an 87% National Loan Limit

The consumer and lender response to a move to a national loan limit is difficult to predict, but several observations can be made concerning the impact of a national loan limit.

- Most borrowers whose appraised value exceeded their loan limit would be demoted to having their loan limit equal their appraised value. This creates a less favorable mortgage insurance profile for HUD. To the extent that a new segment of borrowers with appraisals in excess of the new loan limit is brought into the HECM program as has previously been the case, this negative impact can be counteracted.
- If the program allowed an opportunity at the time of initiation of a national loan limit for current borrowers to increase the loan limit to the lesser of the initial appraisal value and the national loan limit, the surplus development would be consistent with the levels shown for the national loan limit.

- If the program allowed an annual opportunity at the time of any loan limit increase for current borrowers to increase the loan limit to the lesser of the initial appraisal value and the new loan limit and pay a 2% MIP on the amount of increase, the surplus development would be mildly less favorable than the levels shown for the national loan limit. If a new appraised value were allowed, the cost would be more significant.
- Lenders could find it more convenient to advertise and promote a program with a single limit. Sales material could be simplified, administrative adjustments for changing local limits could be eliminated, and the message to the borrower could be simplified.
- The increase in loan limits will benefit mainly the lower housing-cost localities. To the extent that this brings in homeowners with above-median-value homes, it could increase the share of homes that have more attractive annual increases in value and that ultimately are sold in a more competitive housing market. This ultimately reduces HECM claims and increases margins in the MIP.

Impact on HECM Demand with 87% National Loan Limit

Future demand is difficult to estimate. Past estimates have suggested that the reverse mortgage market would be many times its current size, but the key to significant growth has not been found and the barriers to utilization have not been clearly identified. Estimating the increased demand from the introduction of a national loan limit is just as difficult, but we have some observations.

- The May 2003 Report indicated that if utilization of HECMs remains constant as a function of the relationship of the borrower's appraised value to the loan limit (i.e., x% of homeowners with appraised values of y% of the loan limit will purchase HECMs), then there would be a 25% increase in the program. However, the report estimated that the impact would be much smaller, only 5%, because "the decision to open a HECM is influenced by many factors that are of greater importance than the loan limit." We agree that the loan limit is not the primary determinant of opening the loan, but note that that is already factored into the current utilization. Consequently, we feel that the possible impact is closer to the middle or upper end of the range, i.e., 15-20%.
- There currently are 30% of loans with appraisals in excess of the loan limit. With the 87% national loan limit, this is reduced to 9%. Restoration of the 30% level with a new segment of high-appraisal customers would suggest upwards of 20% new entrants as a possibility.
- Current loan placements are a combination of new candidates who enter because of age or status change and previously eligible candidates who waited to open a HECM loan. To the extent that the market is increased by a switch to a national loan limit, there could be an immediate jump in loans as candidates who

previously found the limits unattractive now reconsider. In addition to the surge of “catch-up” placements, there would be a continuing higher level of placements among those becoming candidates annually.

- If the program always allowed an opportunity for current borrowers to increase their loan limit to the lesser of the initial appraisal value and any increased loan limit (including both at the time of introduction of a national loan limit and at any time loan limits increase), it would be more attractive for homeowners with appraisals above the limit to participate in the program.
- If the simplification of the HECM program through the introduction of a national loan limit encourages broader advertising campaigns, the demand could increase well beyond the levels suggested above.

Appropriateness of Using a National Loan Limit

The discussion above indicated the affordability of using a national loan limit and suggested the magnitude of the increase in utilization. Another question is whether it is an appropriate step to take.

The HECM reverse mortgage program is structured with similarities to the FHA’s forward mortgage program, which was a logical starting point. The forward program focus on below-median-price housing purchases was carried into the HECM program loan limits. However, the difference in needs that the two programs are addressing suggests that a divergence in loan limits would be appropriate.

The forward mortgage program attempts to improve the access to home purchase for potential purchasers of lower-cost housing. Thus, there are loan limits related to median housing costs. In contrast to this, the reverse mortgage program is intended to create liquidity for homeowners who are “house-rich but cash-poor”. Since a reverse mortgage is a last resort, the user has little or no assets beyond the home. The fact that the home may be priced above the median does not suggest that the homeowner is much better off than someone with a home below the median. In either case, they have little of value beyond the home. Both seem to be appropriate candidates for a HECM.

From another perspective, the essentials for living a simple life do not differ much from one area to another, regardless of standard cost of living measures. Often a differentiator in living expenses is housing cost, but that has been removed by definition from a reverse mortgage comparison. Basically, a person with a below-median home valued at \$x in a high home cost area and another person with an above-median home also valued at \$x in a low home cost area both face similar living expenses. A national loan limit would provide them with equal access to the liquidity that they equally need.