

IV. Considerations and Limitations

In the course of performing this year's Actuarial Review, we have identified the following limitations and issues for consideration or possible additional investigative analyses:

- Model responsiveness to changing economic conditions.

The actuarial models used for this study are based on econometric regression techniques. The forecasts of economic values and capital ratios have shown to be driven by several key economic variables which have been incorporated into the actuarial models. However, these models are not time series models and are therefore dependent upon the forecasts of future value of the economic variables. The parameter calibration of these models reflects a wide variety of economic conditions over the past 25 years and therefore the forecasts presented in this study are long term in nature as is appropriate given the long term cash flows involved.

Short term variations in MMIF claims or prepayment rates are not predicted by these models nor are other variables, such as delinquencies. It is not clear if such short term variations could have a significant influence on the long term forecasts. Further study in such short term variations is challenged by a lack of data availability and data consistency. However, the various statistical tests used in this study do not seem to indicate that short term variations will have a significant effect on long term cash flows. Nonetheless, additional study of short term variation may be warranted if there continues to be indications that could be adverse to the Fund's long term viability.

- Using the model to predict fiscal period claims and prepayments.

As discussed above in regard to model responsiveness, the actuarial models used for this study were not intended to predict short term claims and prepayments for each fiscal period. Additional variables may be needed to predict short term results, but those additional variables would also need to be predicted or modeled by time series.

Further study of short term forecasts may be warranted if the annual actuarial study shows deterioration in the Fund's capital ratio, or other adverse indications, that might be explained by short term variables. A first step may be an investigation of various actuarial metrics for monitoring and testing whether short term fiscal period levels of claims, prepayments and delinquencies are significantly at variance to the model forecasts.

- Using detailed regional economic data by geographic statistical code in the regression model but using countrywide economic data for the forecast period.

There have been questions posed regarding the potential impact of how differences in regional economic conditions, and the related forecasts of regional economic variables, might affect the forward projections of claims and prepayment rates, and possibly loan demand.

Actuarial Review of MMI Fund as of FY 2002

Investigation into these questions would require an expanded scope of work due, in part, to the significant amount of data which has not previous been compiled by any type of regional breakdown for the actuarial studies to date. Also, not all of the elements of the current models could be completed at the regional level of detail, so appropriate methods would need to be developed and tested.

- Interpretation of the how high the capital ratio should be before introducing reduced premiums, distributive shares or other features would be prudent.

Investigations into this issue should involve exploration of various actuarial metrics for assessing the strength of the capital ratio, particularly in terms of the viability of the Fund to withstand prolonged adverse economic conditions.

- Review whether the loan demand model could be enhanced to incorporate the distribution of loans across loan type, LTV category, and region, possibly to predict changes in the FHA share of the mortgage market.

If HUD wishes to incorporate some of these suggestions into future actuarial reviews, appropriate modification to the scope of the actuarial review will be needed.