

**Section VII: Consideration and Limitations**

The estimates presented in this Review require projections of events more than 30 years into the future. These projections are dependent upon a number of assumptions, including economic forecasts by Global Insight Inc. and the assumption that FHA does not change its refund and premium policies. To the extent these or other assumptions are subject to change, the actual results will vary, perhaps significantly, from our current projections.

Furthermore, our analysis is based on an extract of FHA's data warehouse obtained at the end of March 2004, a December 2003 extract for additional LTV information, as well as updated information covering the total claim cases observed as of end of July 2004. While we have reviewed the integrity and consistency of these data and believe the data to be reliable, we have not audited them for accuracy. The information contained in this Review may not correspond exactly with other published analyses that rely on FHA data compiled at a different time or obtained from other data sources.

We identified the following limitations and issues for consideration or possible additional investigative analyses while conducting this Actuarial Review:

- Model responsiveness to changing economic conditions.

The following describes the actuarial models used for this study. First, they are based on econometric regression techniques. Several key economic variables incorporated into the actuarial models drive the forecasts of economic values and capital ratios. Second, these models are not time series models and are therefore dependent upon the forecasts of future values of the economic variables. Third, the parameter estimation of these models reflects a wide variety of economic conditions over the past 25 years. Therefore, the forecasts presented in this study are long term in nature as is appropriate given the long-term cash flows modeled.

Short-term variations in MMI Fund claims or prepayment rates are not predicted by these models nor are other variables, such as delinquencies. It is not clear what conditions would cause such short-term variations to 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 calibrations used in this study were based on testing short-term variations from the most recent years and considering the possible effect on long-term cash flows.

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

As discussed above in regard to model responsiveness, the actuarial models used for this study were not intended to predict short-term claim and prepayments for each fiscal period. Although we calibrated the model to reflect the impacts that some short-term data may have on the economic value and capital ratio of the Fund, additional variables would be needed to properly project short-term results. Those additional variables would also need to be predicted or modeled. Further study of short-term forecasts could be included in future annual actuarial studies to assess the potential for deterioration in the Fund's capital ratio or other adverse indications that might be predicted by short-term variables.

- Using borrower credit rating data in the actuarial models

Consideration should be given to reflect borrower credit characteristics in the actuarial models. A borrower's credit score has been proven to have important implications for the credit risk of a mortgage loan. It would be beneficial to enhance the econometric models by incorporating credit rating measures of the borrowers. The main difficulty of such an enhancement lies on the limitation of data availability. FHA did not collect borrower credit history information until recent years. Substantial research would be required to efficiently utilize the limited available data to enhance the performance of the actuarial models.

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

Investigation 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.

- The current review depends on FHA's projection of the volume of future books of business. A more comprehensive demand forecast model that incorporates the distribution of loans across loan types, LTV categories, and regions, in addition to overall volume estimates could enhance the reliability of the capital ratio projection of future fiscal years.