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HOMEOWNERSHIP

Actuarial Soundness of FHA's  
Single-Family Mortgage  
Insurance Program

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Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss the preliminary results of our assessment of the actuarial soundness of the single-family mortgage insurance program's Mutual Mortgage Insurance Fund (Fund). As you know, this program is administered by the Department of Housing and Urban Development's (HUD) Federal Housing Administration (FHA). The 1992 appropriations act for HUD<sup>1</sup> directed us to make this assessment, the purpose of which is to determine whether FHA's Fund has sufficient financial reserves to meet estimated future losses resulting from the payment of claims on defaulted mortgage loans. In response to the legislative mandate, we have thus far developed preliminary estimates, under two different economic scenarios, of the economic net worth<sup>2</sup> of the Fund as of the end of fiscal year 1991. We were incorporating FHA's fiscal year 1992 mortgage loan activity, the latest data available, into our actuarial assessment when you asked us to testify at these hearings. We will issue a report on the results of our assessment.

Before presenting our estimates, I would like to stress their preliminary nature. We are still testing the economic and cash flow models that we developed to forecast the Fund's ability to support potential losses over the life of the mortgages insured by FHA; therefore, our estimates are subject to change. However, within the next few months, we expect to complete our review of the models, update our forecasts to reflect FHA's fiscal year 1992 home loan activity, and arrive at final estimates of the Fund's economic net worth and resulting ability to meet legislatively established targets for capital reserve ratios as soon as possible.

In summary, our preliminary analyses show that although the Fund was not actuarially sound as of the end of fiscal year 1991 as required by law and probably did not achieve the October 1, 1992, legislatively established requirement for capital reserves, its financial health may have improved in fiscal year 1992. We estimate, assuming a conservative rate of appreciation in house prices, that the Fund had an economic net worth of about -\$1.4 billion as of the end of fiscal year 1991 and a resulting capital reserve ratio of -0.46 percent of the amortized insurance-in-force, valued at \$302 billion as of that date. Under these estimates, if FHA did not insure any new loans after September 30, 1991, the Fund's reserves would probably not be adequate to

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<sup>1</sup>The Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act (P.L. 102-139).

<sup>2</sup>The current cash available to the Fund, plus the net present value of all future cash inflows and outflows expected to result from outstanding mortgages in the Fund.

cover the federal government's potential liability over the life of the loans outstanding as of that date.

However, our analyses of the mortgage loans that FHA originated in fiscal year 1991, indicates that they may have a positive economic net worth. Also, our estimate of the Fund's economic net value and capital reserve ratio at the end of fiscal year 1991 is based on a mortgage loan portfolio that includes very few loans made after the July 1991 increases in FHA premiums. As the proportion of loans with higher premiums increases, the Fund's financial health should improve. Hence, we anticipate that the Fund's actuarial position will show improvement in fiscal year 1992. Finally, other steps that HUD or FHA are taking to improve FHA's management of the single-family mortgage insurance program should help to reduce losses and to strengthen the Fund's financial health.

The actual economic net worth and capital reserve ratios of the Fund--and the validity of our estimates--will depend on a number of future economic factors, including the rate of appreciation in house prices over the life of the FHA mortgages of up to 30 years. This factor is significant because, as house prices rise, borrowers' equity increases and the probability of defaults and subsequent foreclosures decreases. If house prices increase more or less rapidly than we assumed, then the Fund's economic net worth will be higher or lower, respectively, than we estimated.

Before I review our ongoing assessment of the Fund's actuarial soundness in detail, let me briefly outline the purpose of FHA's single-family mortgage insurance program's Fund and the history of its financial condition.

#### PURPOSE AND FINANCIAL HISTORY OF FHA'S FUND

The primary purpose of FHA's Fund is to insure private lenders against loss on mortgages financing purchases of one to four housing units. To cover losses on these mortgages, FHA deposits insurance premiums from participating home buyers in the Fund. As of September 30, 1991, the value of the Fund's amortized insurance-in-force portfolio was about \$302 billion. According to 12 U.S.C. 1709, the Fund must be actuarially sound; that is, it must contain sufficient reserves and funding to cover estimated future losses resulting from the payment of claims on defaulted mortgages and administrative costs. A determination of actuarial soundness requires the use of an accrual basis of

accounting.<sup>3</sup> A primary objective of accrual accounting is to report the financial position and results of an entity's operations on the basis of measurable events, regardless of whether cash has changed hands. The accrual concept is particularly important for an entity such as FHA (or any insurance enterprise) because the actual payout or collection of cash may precede or follow the event that gave rise to the cash transaction by a substantial time period. Thus, a favorable cash position, or positive cash flow, at any given point may not reflect the true financial position of the entity.

The Fund remained relatively healthy until the 1980s, when losses were substantial, primarily because foreclosure rates were high in economically stressed regions, particularly in the Rocky Mountain and Southwest regions. For example, in fiscal year 1988 the Fund lost \$1.4 billion. If the Fund were to become exhausted, the U.S. Treasury would have to directly cover lenders' claims and administrative costs.

In response to FHA's financial problems, the Cranston-Gonzalez National Affordable Housing Act (P.L. 101-625) (NAHA) was enacted. This legislation contained reforms to FHA's single-family mortgage insurance program designed to place the Fund on an actuarially sound basis. NAHA, among other things, required FHA borrowers to pay more in insurance premiums over the life of the loans. It effectively raised the present value of the insurance premium from the then existing 3.8 percent of the loan amount to from 5.5 to 7.3 percent, depending on the amount of the down payment made. NAHA also mandated that FHA's Fund attain a capital ratio of 1.25 percent by October 1, 1992, and designated a target of 2.0 percent for October 1, 2000. The capital ratio was defined by the act as the ratio of the Fund's capital or economic net worth to its unamortized insurance-in-force.<sup>4</sup>

In addition to economic factors, we have concluded that poor program management and waste, fraud, and abuse contributed to the losses sustained by FHA's Fund. The full extent of losses attributable to these factors is not known. As we have pointed out in previous testimonies and reports, some of the major

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<sup>3</sup>An accrual basis of accounting matches, or recognizes, the receipt of revenues and the expenditures of funds to produce that revenue in the same fiscal time period rather than in the period when they actually occur, which may be in different fiscal years.

<sup>4</sup>However, the act defined unamortized insurance-in-force as the remaining obligation on outstanding mortgages, a definition generally understood to apply to amortized insurance-in-force. We used the amortized insurance-in-force measure for our calculations because FHA insured mortgages are in fact fully amortized over the 30 year life of the loans.

management problems facing HUD concern FHA's single-family program. For example, the absence of internal controls over FHA's single-family property disposition management systems allowed private real estate agents to steal millions of dollars in FHA funds. Moreover, we reported that a direct correlation exists between the effectiveness of internal controls, the accuracy and timeliness of financial information, and the magnitude of losses incurred by FHA as well as by other HUD programs.<sup>5</sup>

We and HUD's Inspector General have been reporting on these management problems since the early 1980s. HUD has taken steps to address these problems and to strengthen FHA's financial position in the areas of property disposition, underwriting practices, monitoring of lenders, and reforms to accounting systems to prevent fraud in the future. However, we have concluded that much work remains to be done by HUD and FHA to resolve the underlying causes of FHA's problems such as inadequate information and financial management systems. Any success achieved by HUD and FHA in reducing FHA's losses through better management will improve the financial health of the FHA Fund.

OUR ESTIMATES OF THE FUND'S  
ECONOMIC NET WORTH

FHA had amortized insurance-in-force valued at about \$302 billion as of September 30, 1991. To estimate the economic net worth of, and resulting capital reserve ratio for, these loans over their life of up to 30 years, we developed an economic model of FHA's home loan program and generated two different scenarios, assuming for each a different rate of appreciation in house prices over the next 30 years. For our conservative baseline economic scenario, we assumed that house prices (adjusted for changes in housing quality and depreciation) would increase by 1

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<sup>5</sup>See Impacts of FHA Loan Policy Changes on Its Cash Position (GAO/T-RCED-90-70, June 6, 1990); HUD Reforms: Progress Made Since the HUD Scandals but Much Work Remains (GAO/RCED-92-46, Jan. 31, 1992); and Letter to the Ranking Minority Member, Subcommittee on Housing and Community Development, House Committee on Banking, Finance and Urban Affairs, (B-249052, Sept. 30, 1992).

percent annually on average.<sup>6</sup> For our high case economic scenario, we assumed that housing prices would increase by 3 percent annually on average. For both scenarios, we assumed that the unemployment rate would average about 5.8 percent per year. A more detailed discussion of our modeling approach for forecasting the economic net worth of FHA's Fund appears in appendix I. We will present a complete description of our models in our report.

Table 1.1 presents our estimates under the two scenarios of the economic net worth and resulting capital reserve ratios for the FHA mortgage loans outstanding as of September 30, 1991. Although future rates of appreciation in house prices are uncertain, recent trends suggest that it would be fiscally prudent to place greater reliance on our more conservative baseline scenario. Under this scenario, we estimated that the Fund had an economic net worth of about -\$1.4 billion and a resulting capital reserve ratio of -0.46 percent. Under our high case economic scenario, we estimated that the Fund's economic net worth and capital reserve ratio would improve from our baseline estimate to about -\$811 million and -0.27 percent. Price Waterhouse has performed actuarial reviews of the Fund for FHA since 1990. Our high case estimate is similar to Price Waterhouse's estimate as of the end of fiscal year 1991; an economic net worth of -\$699 million and a capital reserve ratio of -0.20 percent.<sup>7</sup> Although we have not yet estimated what the Fund's economic net worth and capital reserve ratio would be if house prices (in constant-quality terms) remained constant, we know that these values would be even more negative than our baseline estimates.

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<sup>6</sup>Future house prices were estimated as the initial value of the property at the time of loan origination times the forecasted annual increase in the median house price. The estimated appreciation in house prices was then adjusted downward by 2 percent annually to account for changes in housing quality and depreciation. As a result, a 1-percent annual change in the price of a constant quality house is equivalent to a 3-percent annual change in the median house price.

<sup>7</sup>Price Waterhouse assumed a 4-percent rate of appreciation in house prices in developing this estimate.

**Table 1.1: Preliminary GAO Estimates of the Economic Net Worth and Capital Reserve Ratios of FHA's Fund as of September 30, 1991**

GAO scenarios	Estimated economic net worth (in millions of dollars)	Estimated capital reserve ratios (percentage)
High Case	-\$811	-0.27
Baseline	-1,388	-0.46

While our analyses of the actuarial soundness of the Fund as of the end of fiscal year 1992 is in its early stages, we anticipate the economic value of the Fund has improved. This is because FHA borrowers during fiscal year 1992 are subject to the higher premium payments mandated by NAHA and our analyses of FHA home loans made in fiscal year 1991 show they potentially have a positive economic net worth. However, we do not anticipate that the economic value of the Fund has improved to the point that the Fund achieved the legislatively established capital reserve ratio of 1.25 percent of insurance-in-force on October 1, 1992.

**PRICE WATERHOUSE'S ESTIMATES OF THE FUND'S ECONOMIC NET WORTH**

Price Waterhouse has performed four reviews for FHA of the Fund's actuarial position for each fiscal year during the period from 1989 through 1992. Table 1.2 summarizes the results of these reviews. A few days ago we received a copy of Price Waterhouse's report on the actuarial soundness of the Fund as of the end of fiscal year 1992. Since we have not yet completed our fiscal year 1992 assessment, we cannot account for any differences that might exist in our estimates and the estimates prepared by Price Waterhouse at this time.

**Table 1.2: Price Waterhouse's Estimates of the Economic Net Worth and Capital Reserve Ratios of FHA's Fund for Fiscal Years 1989-91**

Reviews as of September 30	Estimated economic net worth (in billions of dollars)	Estimated capital reserve ratios (percentage)
1992	\$1.4	0.43
1991	-.67	-0.20
1990	-2.67	-0.88
1989	3.13	1.19



As of the end of fiscal year 1991, Price Waterhouse reported, as we did, that the Fund had a negative economic net worth. However, in its July 9, 1993, report on the Fund as of the end of fiscal year 1992, Price Waterhouse reported that the economic value of the Fund had increased by \$2.1 billion since the end of fiscal year 1991 and was \$1.4 billion at that time. It also reported that the Fund's capital reserve ratio at the end of fiscal year 1992 (0.43 percent) did not meet the 1.25 percent capital ratio established by NAHA for October 1, 1992. However, Price Waterhouse reported that it expected the Fund to meet the October 1, 2000, capital ratio target of 2.0 percent of the unamortized insurance-in-force with a capital ratio of 2.44 percent if the U.S. economy recovers as predicted in its baseline forecast.

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In conclusion, Mr. Chairman, our preliminary assessment suggests that FHA's Fund was not actuarially sound as of the end of fiscal year 1991, but its financial health may have improved in fiscal year 1992. Although we have today emphasized the estimates of the Fund's actuarial position that we have derived from our models, the importance of better management by HUD and FHA in reducing FHA's losses and improving the Fund's financial health should also be recognized.

Mr. Chairman, forecasting economic net worth and resulting capital ratios to determine whether FHA will have the funds it needs to cover its losses over the next 30 years on mortgages it has insured is uncertain. Loan performance and, therefore, economic net worth, will depend on a number of economic and other factors, particularly on the actual rate of appreciation in house prices over that period. One of the objectives of our work is to identify the assumptions about future economic conditions that significantly affect estimates of the Fund's economic net worth and to present the financial impacts of different assumptions on the actuarial soundness of the Fund. We will also be able to analyze the potential impact on the Fund's actuarial soundness of changes to the single-family program that may be proposed by FHA and others, including changes in the maximum mortgage amount and down payment requirements. This information will allow the Congress to consider modifications of FHA's single-family program in accordance with its expectations of the housing market's future performance and the associated financial impact of those expectations on program modifications. These issues will be addressed further in our upcoming report.

Mr. Chairman, this concludes my statement. We would be pleased to respond to any questions that you or Members of the Subcommittee may have.

GAO's ECONOMIC MODEL

To estimate the economic net worth of FHA's Fund as of September 30, 1991, and its resulting capital reserve ratios under different economic scenarios, we examined existing studies on the single-family housing programs of both HUD and the Department of Veterans Affairs (VA), academic literature on the modeling of mortgage defaults and prepayments, and previous work performed by Price Waterhouse and others, HUD, VA, and GAO on modeling government mortgage programs. On the basis of this examination, we developed economic and cash flow models that we used to prepare our estimates. For these models, we used data supplied by FHA and DRI/McGraw-Hill, a private economic forecasting company. At present, we are still reviewing our models and discussing them with others. Therefore, our results to date should be interpreted as preliminary and subject to change.

Our economic analysis estimated historical relationships between certain explanatory factors and the probability of loan foreclosure and prepayment. To estimate these relationships, we used data on the performance of FHA-insured home mortgage loans originated from fiscal years 1975 through 1991. Also, using our estimates of these relationships and of economic conditions, we developed a baseline forecast of future economic conditions to estimate economic net worth and the resulting capital reserve ratio. We then developed additional estimates that assumed higher future rates of appreciation in house prices. As we complete our analysis, we will develop still other estimates under an economic scenario in which house prices rise less rapidly and the unemployment rate is higher than in our baseline scenario.

We estimated future house prices by multiplying the initial value of the property at the time of loan origination by the DRI/McGraw-Hill forecasted annual increase in the median house price. The rate of change in the median house price reflects the price of houses actually sold each year. Because new houses are larger and include more amenities than existing homes and because existing homes are occasionally renovated, the median sales prices of new FHA-insured homes will increase faster than the median sales prices for existing FHA-insured homes. In addition, the value of existing homes depreciates over time. The relevant consideration to the FHA home owner, however, is how much the value of his or her house has increased since purchase, not how much the value of the general housing stock has changed. Because of these considerations, we adjusted the estimated rate of appreciation in existing house prices downward by 2 percent annually to account for changes in housing quality and depreciation. Our assumed 5.8 annual unemployment rate was also based on DRI/McGraw-Hill forecasts.

Our forecast of the actuarial soundness of FHA's Fund is limited to the extent that our estimates do not at this time reflect the impact of reforms introduced by NAHA in July 1991 in the underwriting standards applicable to FHA home loans and other aspects of the program. Among other things, these reforms increased the insurance premiums paid by FHA home buyers. Because these reforms were implemented only recently, actual data on the performance of loans underwritten in accordance with these new standards will not be available for many years. Consequently, the extent to which these and other program changes will affect the historical relationships indicated by the fiscal year 1975-91 FHA data we used in our model is not reflected in our estimates of the Fund's economic net worth and capital reserve ratios.



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