IMPACT ANALYSIS

Federal Housing Administration Risk Management Initiatives:

Reduction of Seller Concessions and New Loan-to-Value and Credit Score Requirements

FR-5404-N-01

1 Summary of Impact Analysis

FHA's authorizing statute for insurance authorities, the National Housing Act, clearly envisions that HUD will adjust program standards and practices, as necessary, to operate the MMIF on a self-sustaining basis. In this Notice, FHA proposes to tighten portions of its underwriting guidelines that present an excessive level of risk to both homeowners and FHA. The benefit of the set of actions outlined in the Notice will be to reduce the net losses due to high rates of insurance claims on affected loans, while the cost will be the value of the homeownership opportunity denied to the excluded borrowers. The total saving to the FHA would be $96 million in reduced claim losses and the net cost to society of excluding reduced homeownership rates could be as high as $82 million.

2 Need for Policy Change

Over the last two years, FHA has resumed its countercyclical position, supporting private lending for homeownership when access to private sources of capital for credit enhancements are otherwise constrained. The volume of FHA insurance increased rapidly as private sources of mortgage insurance retreated from the market. The growth in the Mutual Mortgage Insurance Fund (MMIF) portfolio over such a short period of time coincides with a set of difficult economic conditions, namely continued housing price declines and increasing levels of unemployment. Together, these external conditions increase the risk of additional losses to FHA were it to not make changes to minimum underwriting standards.

A recently issued independent actuarial study[1] estimated that the Mutual Mortgage Insurance Fund (MMIF) capital ratio had fallen below its statutorily mandated threshold of 2 percent. The study reported that FHA will likely sustain significant losses from mortgage loans made prior to 2009, due to the high concentration of seller-funded downpayment-assistance mortgage loans, and to declining real estate values nationwide.

[1] Actuarial Review of the Federal Housing Administration Mutual Mortgage Insurance Fund (Excluding HECMs) for Fiscal Year 2009. See http://hud.gov/offices/hsg/comp/rpts/actr/2009actr_exhecm.pdf

There are four primary policy changes that FHA can implement to replenish the MMIF capital reserve account: 1) increase premium rates to raise income; 2) reduce losses on new business by tightening underwriting guidelines; 3) strengthen enforcement measures to reduce unwarranted claim payments; and 4) avoidance of claims through enhanced loss mitigation efforts. FHA is engaged in efforts on all of these fronts, exercising its full authority under the terms of the National Housing Act, including new authorities provided in recently enacted legislation.

HUD has already undertaken several measures to protect the FHA fund during the economic downturn, focusing on programs and practices that resulted in poor loan performance. Representative of the first approach (higher premium rates), FHA introduced an increase in the upfront mortgage insurance premium on April 5, 2010. By Mortgagee Letter 2010-02, FHA notified the industry that FHA will now collect an upfront insurance premium of 2.25 percent, as opposed to the 1.75 percent fee formerly charged. As the Mortgagee Letter provides, the new upfront premium is applicable to mortgages insured under the MMIF, with some notable exceptions. The Mortgagee Letter advises that the new upfront premium is not applicable to mortgages insured under the following programs: Title I of the National Housing Act (home improvement and chattel loans for manufactured housing); Home Equity Conversion Mortgages (reverse mortgages for senior citizens); HOPE for Homeowners; Section 247 (Hawaiian Homelands); Section 248 (Indian Reservations); Section 223(e) (declining neighborhoods); and Section 238(c) (military impact areas in Georgia and New York). The Mortgagee Letter also advises that there is no change to the rate charged for annual/periodic premiums.

Representative of the second approach (tighter underwriting guidelines), FHA has implemented the new statutory prohibition on seller-financed downpayment assistance, and it has tightened underwriting guidelines for both the streamline and cash-out refinance products. FHA also implemented several changes to the agency's appraisal standards—shortening the validity period and reaffirming appraiser independence—to ensure that appraisals are as up-to-date and accurate as possible. This Notice further complements the underwriting approach to strengthening FHA's performance of its fiduciary responsibilities.

Representative of the third approach (stronger enforcement), FHA has increased oversight of lenders,[2] and has terminated and suspended several lenders whose default and claim rates were significantly higher than the national average default and claim rate.

3 Summary of Notice

First, FHA proposes to reduce the amount of financing costs a property seller or other interested party may pay on behalf of a homebuyer using an FHA-insured mortgage. This proposed cap on "seller concessions" will more closely align FHA's single family mortgage insurance programs with standard industry practice and minimize FHA exposure to the risk of adverse selection. Secondly, FHA proposes to introduce a two-part credit-score threshold, with one lower bound for loans with loan-to-value ratios of 90 percent or less, and a higher threshold for those with loan-to-value ratios up to the statutory maximums. This will be the first time that FHA has ever instituted an absolute lower-bound for borrower credit scores. Borrowers with low credit scores present higher risk of default and mortgage insurance claim. Third, FHA will tighten underwriting standards for mortgage loan transactions that are manually underwritten. Such transactions that lack the additional credit enhancements proposed under this Notice result in higher mortgage insurance claim rates and present an unacceptable risk of loss.

3.1 A. Reduction of Seller Concession

When a home seller or interested third party, pays all or part of the buyer's cost of financing, the payments are commonly referred to as seller concessions. This Notice proposes to reduce the 6 percent limitation defined in HUD Handbooks 4155.1, section 2.A.3 and 4155.2, section 4.8 to 3 percent. While HUD previously has allowed seller concessions up to 6 percent of the sales price, conventional mortgage lenders have capped seller concessions at 3 percent of the sales price on loans with loan-to-value ratios similar to FHA. Loans guaranteed by the Department of Veterans Affairs cap seller concession at 4 percent of the sales price.

FHA proposes to cap the seller concession in FHA-insured single family mortgage transactions to 3 percent of the lesser of the sales price or appraised value for purposes of calculating the maximum mortgage amount. As shown in Table C of the Notice, borrowers who received more than 3 percent in seller concessions had a significantly higher risk of losing their homes. While seller concessions above 3

[2] See HUD press release of September 18, 2009, announcing FHA credit policy changes to improve risk management functions at http://www.hud.gov/news/release.cfm?content=pr09-177.cfm, and the individual Mortgagee Letters implementing these policy changes at http://www.hud.gov/offices/adm/hudclips/letters/mortgagee/index.cfm. See also HUD's November 30, 2009, rule proposing to increase the net worth of FHA-approved lenders at 74 FR 62521.

percent would not be prohibited under this proposal, concessions that exceed FHA's 3 percent cap would be required to result in a dollar-for-dollar reduction in the sales prices for purposes of calculating the maximum FHA loan amount. This proposed cap will not only align FHA's single family mortgage insurance programs to industry practice, but will help ensure that borrowers who rely on FHA-insured financing have sufficient investment in their home purchases and are less likely to default.

3.2 New Loan-to-Value Ratio and Credit Score Requirements

FHA is proposing to introduce a minimum decision credit score 500 to determine eligibility for FHA financing, and to also reduce the maximum LTV for all borrowers with decision credit scores of less than 580. Maximum FHA-insured financing (96.5 percent LTV for purchase transactions and 97.75 percent LTV for rate-and-term refinance transactions) would only be available to borrowers with credit scores at or above 580. All borrowers with decision credit scores between 500 and 579 would be limited to a maximum 90 percent LTV.

The decision credit score used by FHA in this analysis is based on methodologies developed by the FICO Corporation. So-called FICO scores, which range from a low of 300 to a high of 850, are calculated by each of the three National Credit Bureaus and are based upon credit related information reported by creditors, specific to each applicant. Lower credit scores indicate greater risk of default on any new credit extended to the applicant. The decision credit score is based on the middle of three National Credit Bureau scores or the lower of two scores when all three are not available, and for the lowest scoring applicant. While FHA's historical data and analysis is derived from the "FICO based" decision credit score, it is not FHA's intent to prohibit the use of other credit scoring models to assess an FHA borrowers' credit profile.

While FHA is serving very few borrowers with credit scores below 500 today, as shown in Table A of the Notice, the performance of these borrowers is clearly very poor, as reflected in Tables B and D of the Notice. Table D shows the serious delinquency rates for borrowers with credit scores below 500, demonstrating that these borrowers struggle to meet their mortgage obligations. Table E of the Notice demonstrates that the percentage of borrowers who ultimately lose their homes is twice as high for borrowers with lower credit scores. Similarly, FHA data demonstrates that borrowers with decision credit scores below 580, who invest only a minimal amount of funds into the transaction, struggle to make their mortgage payments and ultimately lose their homes at a rate that is unacceptable to FHA. Table D of the Notice shows that borrowers affected by this Notice have seriously delinquent rates four-to-five times higher than those who remain eligible.

3.3 Manual Underwriting

The purpose of mortgage underwriting is to determine a borrower's ability and willingness to repay the debt and to limit the probability of default. An underwriter must consider a borrower's credit history, evaluate their capacity to repay the loan based on income and current debt, determine if the cash to be used for closing is sufficient and from an acceptable source, and determine if the value of the collateral supports the amount of money being borrowed.

In cases where the borrower has very limited or non-traditional credit history, the credit bureaus may not be able to calculate a credit score. Mortgage loans for borrowers in this category will need to be manually underwritten. In addition, loans for which FHA's TOTAL Mortgage Score Card returns a "Refer" decision require manual underwriting, even if the borrower's credit report is sufficient for producing a credit score. These categories of borrowers present a higher level of risk and, as a result, manual underwriting guidelines are generally more stringent to address that higher risk level.

FHA has determined that factors concerning borrower housing and debt-to-income ratios, along with cash reserves, are good predictive indicators as to the sustainability of the mortgage. FHA is proposing to implement additional requirements that will consider these factors for manually underwritten mortgage loans, as seen in Table F of the Notice.

These additional requirements will consider the borrower's credit history, LTV percentage, housing/debt ratios and reserves. On *all* manually underwritten mortgage loans, borrowers will be required to have minimum cash reserves equal to one monthly mortgage payment, which includes principal, interest, taxes and insurance(s). Maximum housing and debt-to-income ratios will be set at 31 and 43 percent, respectively. Manually-underwritten borrowers with credit scores of 620 or higher may exceed the qualifying ratios of 31/43 percent, not to exceed 35/45 percent, provided that they are able to meet *at least* one of the compensating factors listed in the Notice. To exceed the qualifying ratios of 35/45 percent, not to exceed 37/47 percent, borrowers must meet at least *two* compensating factors listed in the Notice. Any other compensating factors are not acceptable. Mortgage lenders cannot use compensating factors to address unacceptable credit.

4 Costs and Benefits

Given the importance of maintaining a self-sustaining MMI Fund for existing and future homeowners, it is FHA's intent to focus only on restricting particular practices that have been found to result in extremely poor mortgage loan performance.

4.1 Aggregate Loans Affected

Table 1 (Table A from the Notice) shows that few borrowers are served today in the categories FHA is proposing to eliminate, relative to the total FHA portfolio. The reason this policy is still important to FHA is that HUD's expectation are that, once the conventional mortgage market recovers and lenders again loosen underwriting standards, FHA could be adversely selected with larger shares of these higher-risk loans. As late as FY 2008, loans that would be newly excluded under this proposed policy accounted for more than eight percent of all loans insured by FHA (excluding streamline refinancing). The highlighted portion of Table 1 indicates the proportion of borrowers expected to be immediately excluded from the FHA guarantee by the Notice.

TABLE 1 - FHA Single-Family Insurance Endorsement Shares in CY 2009[a]

	Credit Score Ranges					
Loan-to-Value Range	None	300-499	500-579	580-619	620-679	680-850
Up to 90%	0.03	0.01	0.12	0.48	2.28	3.51
Above 90%	0.34	0.02	1.39	7.24	35.80	48.77

[a]All purchase and refinance loans, excluding streamline refinance and reverse mortgages.
Source: US Department of Housing and Urban Development/FHA; February 2010.

Table 2 (Table B from the Notice) clearly indicates, through the performance data provided, that these borrowers are at significantly greater risk of losing their homes than are other FHA-insured borrowers. The seriously delinquent rate of borrowers subject to the proposed restrictions (weighted average across the three cells in Table 2) is 30.6 percent, while that for all other loans is 6.4 percent.

TABLE 2 - FHA Single-Family Insurance
Seriously Delinquent Rates[a] by LTV and Credit Scores[b]
31-Jan-10

	Credit Score Ranges					
LTV Range	None	300-499	500-579	580-619	620-679	680-850
Up to 90%	13.3	35.4	22.4	15.7	6.1	1.5
Above 90%	20.9	43.3	30.4	19.6	8.6	2.3

[a]Seriously delinquent rates measure the sum of 90[+]-day delinquencies, in-foreclosure, and in-bankruptcy cases, as a percent of all actively insured loans on a given date.
[b]Due to restrictions on the availability of loan-origination credit score data, this table only includes actively insured loans that were endorsed for insurance starting in FY 2005. This table does not include information on streamline refinance loans.
Source: US Department of Housing and Urban Development/FHA; February 2010.

In 2008, FHA endorsements numbered 1.4 million and were, as of the third quarter of 2009, approaching an annual level of approximately 2 million (US Housing Market Conditions, Winter 2009). Table A3 of the Appendix displays FHA projections of total loan endorsements. Normal years are closer to 1.5 million. In our modeling, we use 1.5 million as the base-case assumption; 2 million as a maximum, and 1 million as minimum. Multiplying these endorsement numbers by the current share of subject loans, 1.42 percent, yields an assumed number of loans affected by the Notice of 21,300, with a maximum of 28,400 and a minimum of 14,200.

4.2 Benefit of Policy Change

The direct purpose of the policy change outlined in this Notice is to achieve the statutorily mandated minimum capital reserve ratio of 2 percent. The broader purpose of the policy change, however, and of the capital reserve ratio requirement itself, is to ensure the financial soundness of the FHA throughout a wide range of economic conditions. The current financial crisis has led to a credit crunch in which FHA has become the only source of mortgage credit for households who lack significant funds for downpayments and who do not have pristine credit histories.. FHA's share of the single family mortgage market today is approximately 20 percent – up from a low point of just 2 percent in 2007. The dollar volume of insurance written jumped from just $56 billion in 2007to over $300 billion in 2009. Facilitating the provision of credit during a liquidity crisis is a welfare-enhancing activity and the FHA provides such a public benefit. Quantifying the benefit involves measuring the extent to which this Notice increases the abilities of the FHA to meet its mission requirements without having to

substantially increase insurance premiums, and then estimating the value of the net economic benefits provided to households by the housing options afforded them through FHA insurance.

Observers have attributed the current financial crisis to many different causes, from government failure to a natural readjustment of markets. There are many good arguments, however, that a financial crisis is the result of inefficiencies caused by imperfect information and perverse incentives. For example, Stigliz et al. (1993) describing the negative selection externality that "bad" financial firms have on "good" financial firms during a credit crunch. The mere perception of a troubling credit market can affect investors' willingness to provide equity to "good" firms. Since "bad" firms' actions have "spoiled" the market, investors will not provide an efficient level of capital to the financial market. Cassidy (2009) explains in great detail how this story fits the current financial crisis. Large financial institutions have borrowed from others to make bets on risky assets via complex financial instruments. Given the complexity of these financial arrangements, it is difficult, even for well-informed insiders, to gauge the value of the firms that hold these risky assets on their balance sheets. Once housing price appreciation began to slow down, and the value of the financial institutions investing in nonprime mortgages became uncertain, lenders were unwilling to provide credit to these large institutions because they feared that retail-level borrowers would not be able to repay. The result was an economy-wide credit crunch, in which ordinary borrowers were not able to acquire housing credit at reasonable cost.

Another example (Stiglitz et al., 1993) of a market failure is that monitoring the risk of financial firms may be a public good, whereby not all of the benefits accrue to investors in the individual firms. Institutional banks then do not reduce their leverage ratios to a point that controls systemic risk for the entire financial system. Within a single financial institution, management has the ability to limit its firm's risk exposure, and thus decreases the likelihood that their firm will collapse. However, the benefit from a firm lowering its risk has spillover benefits to all of society by lowering the chance of any contagion of collapse to other firms. As a result, a financial institution will not lower its risk exposure to the most efficient level for society because it receives no benefits from reducing the change of contagion. Many of the financial institutions originating nonprime mortgage backed securities during this past housing boom can be considered, in hindsight, to have been overleveraged for the level of risk they imposed on society. The resulting contagion caused the financial crisis in which FHA insurance is now in high demand because private investors have substantially withdrawn from the mortgage insurance market.

4.3 Cost of excluding borrowers

The goal of the FHA is to promote national housing policy by providing access to mortgage credit for first-time homebuyers and others with limited financial wealth. Tightening underwriting guidelines will cause excluded households to either delay transition to homeownership status or else never make that transition. For refinance loans, the proposed restrictions will cause higher housing costs until such time as the excluded households can improve their credit histories and/or gain more home equity through general market-level house price appreciation. There are a few analytical options to estimate the gains to a participant in the FHA loan program (and thus the cost of being excluded).

4.3.1 Costs of a Different Mortgage Loan

One approach would be to estimate the private gain to the household of acquiring an FHA-insured loan by deriving an estimate of the additional costs they would pay to receive a similar loan not insured by the FHA. The FHA does not earn a profit as a private mortgage insurer would. The average borrower gain would be what the borrower would have had to pay for the same insurance on the private market. The disadvantage of this approach is that it is no longer current practice to insure borrowers with low downpayments and low credit scores. The private mortgage insurance market has never served the segment of borrowers that would be eliminated by this Notice, and the subprime market where they previously could have turned for home financing no longer exists. Although the FHA guaranty has value, it would be impossible to measure it through such a method.

Individuals may face other costs from being excluded from an FHA-insured loan, one of which is a search cost for an alternative. However, an individual lender or broker will offer a wide variety of products to a potential customer. An FHA loan is only of many products offered by the typical product so that the typical potential borrower is not likely to go to another lender. The lender would inform the applicant that FHA guidelines have changed and that given their credit score, there are no loans for that individual. Some consumers may wish for a second opinion, however, in which case they would expend additional resources and time. If for example, a consumer spent two hours valued at $40 per hour and another $20 for an additional credit report, then the search cost would be $100 for a fraction of the excluded borrowers.

4.3.2 Private Benefits of Homeownership

A second approach to measuring the advantages of an FHA loan is to compare the private benefits of renting with those of homeownership. Given the state of the market, an FHA-guaranteed loan may represent the only path to homeownership. Those households that apply for a loan clearly believe that

ownership is the optimal financial decision. Some of the potential benefits of homeownership would be: a lower quality-adjusted price for housing; higher satisfaction; and wealth creation.[3]

A household could be expected to pay less for the same unit of housing as an owner occupant than as renter. Higher costs for renters arise because of what is termed an agency problem related to the renter having no vested interest in maintaining the long-run value of the property. A landlord does not know in advance of extending a lease to what extent a tenant will inflict damage, make an effort to take care of the property, or report urgent problems. An owner occupant, on the other hand, has a financial interest in taking care of the property. Thus, both the depreciation and maintenance costs of rental housing can be expected to be higher; a market imperfection that will create an incentive for transition to owner-occupied housing. The difference in owner-occupant and renter behavior would also lead to a difference in the type of housing offered: in general, owner-occupied housing is of higher quality.

Higher satisfaction from owner-occupancy will stem from greater freedom in altering the property to suit one's taste; and not to be subject to variable housing costs (when the alternative is a fixed-rate mortgage). It is also possible that owner-occupancy provides access to neighborhoods and municipalities where long-term rental housing is hard to find.

A frequently perceived benefit of ownership is one of wealth creation. The federal government encourages investment in residential real estate by, in most cases, not taxing the capital gains from selling one's home. The asset-building advantage of homeownership only materializes when housing prices appreciate. The downside of homeownership, of course, is the risk of investing the majority of one's wealth in a single asset. Foreclosure would represent a greater hardship than would eviction from a rental property. In the current market, it is unlikely that investment gains is an overriding motive for becoming a homeowner.

Becoming a homeowner entails paying significant up-front fixed costs such as settlement and lender fees, and pre-paid items such as hazard insurance and property taxes. A household could easily spend 5 percent of the home purchase price on transaction costs and assessments. A lower bound estimate on these costs would be 3 percent (see Dietz and Haurin, 2003). Given these upfront costs, and the significant transactions costs of selling a property, households for whom owning is a better choice would not expect to move soon after purchasing. The transition to homeownership is then

[3] For a good literature review of both the private and public benefits of homeownership, see Dietz and Haurin (2003).

associated with lower expected mobility in the future. That is then associated with higher ages, larger family size, and more income.

The average income of households excluded by the Notice is $70,000. For households of this income, the rent to income ratio is 14.90 percent, which translates to $10,430 in annual rent payments. Suppose that becoming an owner leads to a reduction in housing cost for a unit of comparable quality. The benefit can be measured as a percentage reduction of the annual rent payments. For example, a sizeable 4 percent reduction leads to $417 annual benefit to households (4 % X $ 10,430).

The total benefit of the annual reduction will be affected by the number of years the benefit of owning is denied, and by the household's typical time value of money. That time value is typically expressed as an after-tax rate-of-return available on alternative (non-housing) investments. We assume that the effect of denying the opportunity of an FHA loan to the population in question will be to delay homeownership, rather than to keep the household from ever becoming a home owner. Households that find ownership to be a beneficial financial and lifestyle decision will work to repair their credit score in order to attain eligibility in the future. Even the negative items in a credit report are removed after seven years and it is possible to increase credit scores significantly after three years by better managing consumer debt. Five years is then a good outside estimate of the number of years homeownership would be delayed under this Notice.

The present (discounted) value of a homeownership benefit equal to four percent of rental payments, as mentioned above, is given in Table 3. The values in that table are organized by the number of years ownership is delayed and by the opportunity cost rate-of-return used to discount the benefit stream. We choose 3 percent as our base case discount rate, reflecting an after-tax rate available on a bond-type investments available to an individual household, perhaps through a mutual fund.. We also discount the cash flows at seven percent, reflecting what could be available on more risky investments, or in future time periods.

Table 3. Present value of Annual Benefits Lost Due to Delayed Homeownership (Annual Benefit is $417)		
	Discount rate	
Delay in Years	**3 %**	**7 %**
1	$ 417	$ 417
2	$ 822	$ 807
3	$ 1,215	$ 1,172
4	$ 1,597	$ 1,512
5	$ 1,968	$ 1,830
6	$ 2,328	$ 2,128
7	$ 2,677	$ 2,406

The size of the rental-maintenance cost externality itself plays a role in calculating social benefits. It can be measured as the difference between the depreciation and maintenance rates of rental housing and those of owner-occupied housing. Conventional wisdom among lenders is that households should budget from 1 percent to 3 percent of the original purchase price for maintenance to prevent significant depreciation.[4] If the rental depreciation rate were twice that of owner-occupied housing, the range for rental housing would be 2 percent to 6 percent, making 4 percent a good median estimate of the size of the rental externality. Below the estimates for a range of proportions are presented.

Table 4. Present Value of Benefits of Homeownership by Size of Rental-Maintenance-Cost Externality (discount rate of 3 % and ownership delay of 5 years)		
Annual Reduction in Property Value	Annual Benefit	Present Value over 5 years
1 %	$104	$ 492
2	209	984
3	313	1,476
4	417	1,968
5	522	2,460

While the argument of Henderson and Ioannides (1983) has great theoretical validity, there is not much empirical work supporting the claim that renters pay more than homeowners for constant

[4] http://www.houselogic.com/articles/value-home-maintenance/

quality housing. There is evidence, however, that rental housing does depreciate at a greater rate than owner-occupied housing. Iwata and Yamaga (2004) estimated the probability of a house being in "sound" condition, depending on whether it was owner-owned housing, tenant-owned housing, or landlord-owned housing. They find that the probability of a house being in "sound" condition decreases by 6% if a house is landlord-owned housing compared to owner-owned housing. Wang et al. (1991) estimated the price difference of a single family home, depending on whether it was rental occupied or owner occupied. If the house had been a rental property, its selling price would have decreased by $2,428, which is approximating 3.7 percent of the price of a "standard house". This 3.7 percent decline in value is roughly equal to the size of the rental externality derived using assumptions concerning the differences in maintenance and depreciation rates. Shilling et al. (1991) find that rental housing depreciates 1.9 percent more each year than owner occupied housing. Using repeat sales data, Gatzlaff et al. (1998) find that the difference is very small, only 0.16 percent. This negligible difference in housing value may reflect that landlords are using the addition revenue collected through the rental externality to invest in their property.

The hypothesized reduction in housing costs through homeownership is considered a benefit to society because the source of the reduction is a net decline in the cost of supplying the housing due to lower value depreciation. The rental externality does not constitute a pure transfer from renters to landlords. Landlords charge a rental premium to compensate them for the damage that occurs to their property given the lack of incentives renters have to provide optimal maintenance activities. Changing those incentives via ownership status generates tangible benefits for society.

A final and important point to make concerning consumer benefits is that not all of the borrowers excluded by the Notice would have realized the benefits of homeownership. Some of those who receive a loan will default and lose their homes through foreclosure. Using the expected cumulative claim rates for the excluded group of approximately 20 percent, the estimate of the expected benefit is a smaller $1,574 (80 percent X $1,968).

In summary, our upper-bound estimate of the value from obtaining an FHA-insured mortgage for home purchase is a net four percent reduction in housing costs for a period of *seven* years. Denying that to households then presents a social cost. Discounted at 3 percent, the size of the private cost of the Notice is $2,677 per loan. The expected value after adjusting for foreclosure failures would be $2,142 per loan.

4.3.3 Public Benefits of Homeownership

A third approach would be to evaluate the social benefits of a household becoming a homeowner. The traditional argument for homeownership is that a homeowner will invest more in their community because there is a financial incentive to improve the quality of the neighborhood and thus home values. An engagement by homeowners will lead to greater political activity, a more amenable urban environment, and less crime. Maintaining properties will also have positive spillover effects to neighboring property values in general. There is also a literature linking housing with child outcomes (health and education). One negative social impact is reduced mobility, the effect of which would be to lead to rigidity in the labor market and thus lengthen economic downturns.

There are many private effects that are often considered positive for society. Homeownership encourages household saving and wealth accumulation, and it raises satisfaction in life. There is evidence that owner occupancy leads to greater work effort, thus raising standards of living.

There are some obvious methodological challenges to this type of empirical research. Disentangling the explanatory variable (tenure status) with other characteristics of the household is difficult when the path to ownership depends on use and quality of experience with credit, and that in turn depends on the stability and thrift of the household. Strong empirical support has been found, however, for positive effects of home ownership on child outcomes, political activity, and wealth accumulation, and for negative effects on household mobility. The list of potential social gains to homeownership is summarized below.

Table 5. Social Gains of Homeownership

Impact on	**Theoretical Impact**	**Empirical Confirmation**
Household Saving	Positive	Weak
Wealth accumulation	Strong positive	Strong, if house prices rise
Property Improvements	Strong positive	Weak
Urban environment	Strong positive	Weak
Political activity	Strong positive	Strong, on voting
Crime	Strong positive	Weak
Child outcomes	Strong positive	Strong
Satisfaction	Positive	Reasonable
Mobility	Strong negative	Strong
Labor Supply	Positive	Reasonable, for women

Source: Edward M. Gramlich, *Subprime Mortgages,* Urban Institute Press, 2007

There seem to be both social costs and benefits of homeownership, but the empirical evidence for some of the most compelling arguments for encouraging homeownership is weak. A new wave of

empirical research has generated much more modest estimates of the social value of homeownership. For the sake of argument, however, we choose one study by Coulson and Li (2010) that does not focus on the cause of the benefits but is an empirically rigorous estimate of the impact of adding a homeowner to a neighborhood.

Coulson and Li (2010) used data from the American Housing Survey and analyzed housing clusters that included between 6 and 16 single-family homes. They found that a 100% increase in the homeownership rate in a cluster will raise the price of a housing unit by 40 to 50 percent. In one example, they provide a calculation that the transition of an additional unit will raise the value of other units by 4.1%. If the average price per unit is $170,000, this signifies an increase of $6,970 per unit. Therefore, the externality benefit of ownership for the rest of the typical cluster of nine homes is $62,370.

Delaying transition to homeownership causes a reduction in the present value of public benefits. If a household's ownership transition is delayed for five years, the present value of social benefits of $62,370 (at a 3 percent discount rate) will be $54,111. The difference between these two values represents a loss in public benefits of $8,619 from the five-year delay in ownership. Once we factor in the 20 percent expected failure rate of homeownership among subject households, the expected loss from delay is 80 percent of the calculated loss from delay, or $8,156.

Table 6. Expected Loss of Public Benefits from Delaying Homeownership

Delay in Years	3 percent discount rate			7 percent discount rate		
	Present Value of External Benefit	**Direct Loss from Delay**	**Expected Loss After Adjusting for Failures**	**Present Value of External Benefit**	**Direct Loss from Delay**	**Expected Loss After Adjusting for Failures**
0	$62,370	$0	$0	$62,370	$0	$0
1	$60,903	$1,827	$1,462	$58,626	$4,104	$3,283
2	$59,129	$3,601	$2,881	$54,791	$7,939	$6,351
3	$57,407	$5,323	$4,258	$51,206	$11,524	$9,219
4	$55,735	$6,995	$5,596	$47,856	$14,874	$11,899
5	$54,111	$8,619	$6,895	$44,726	$18,004	$14,403
6	$52,535	$10,195	$8,156	$41,800	$20,930	$16,744
7	$51,005	$11,725	$9,380	$39,065	$23,665	$18,932

The sum of the private and public costs of excluding homeowners is shown here in Table 7.

Table 7. Sum of Costs of Delayed Homeownership								
	Discount rate of 3%				**Discount rate of 7%**			
Delay in Years	**Private**	**Public**	**Total**	**Total Net of Failures**	**Private**	**Public**	**Total**	**Total net of Failures**
1	$417	$1,827	$2,244	$1,795	$417	$4,104	$4,521	$3,617
2	$822	$3,601	$4,423	$3,538	$807	$7,939	$8,746	$6,997
3	$1,215	$5,323	$6,538	$5,231	$1,172	$11,524	$12,696	$10,157
4	$1,597	$6,995	$8,592	$6,874	$1,512	$14,874	$16,386	$13,108
5	$1,968	$8,619	$10,587	$8,469	$1,830	$18,004	$19,834	$15,868
6	$2,328	$10,195	$12,523	$10,018	$2,128	$20,930	$23,058	$18,447
7	$2,677	$11,725	$14,402	$11,521	$2,406	$23,665	$26,071	$20,857

The above estimation of the expected cost to society of delaying entry of a household into homeownership makes the simplifying the assumption that a foreclosure has no other effect than the negation of the benefits of homeownership. There are, however, sizeable losses from foreclosure that are borne by consumers, lenders, neighborhoods, and local governments. HUD's impact analysis of the "FHA Refinance Program for Borrowers in Negative Equity Positions" provides a framework for estimating the social costs, or deadweight loss, from a foreclosure. A conservative estimate would include only transaction costs (legal fees and broker fees) and the negative impact on the value of surrounding properties. Broker fees for property sale are six percent of the property value ($10,200 = 6 % X $170,000) and legal fees for processing a foreclosure are at least two percent of the loan value ($2,720 = 2% X $136,000, assuming an 80% LTV ratio). Total transaction costs are $12,920.

Foreclosures resulting in long-term vacancies have a negative impact on the value of neighboring properties by reducing the physical appearance of the neighborhood, attracting crime, and depressing the local economy. The study of Immergluck and Smith (2006) reports a reduction of 0.9 percent in value for all properties within one-eighth of a mile of a foreclosure. One approach to using the results from this study would be to limit the measurement of negative externalities to close neighbors (ones directly adjacent and across from the foreclosed property: two on each side of the property and five across the street). Doing so would limit the aggregate effect to $13,770 (0.9 percent X $170,000 X 9).

The combined social cost of a single foreclosure is then $26,690 ($12,920 + $13,770). The total social cost of failed homeownership is the cumulative foreclosure rate multiplied by the social cost.

With an expected cumulative claim (foreclosure) rate of 20 percent for subject loans, the expected cost per insured loan and property is $5,338.

If we presume that these potential failures would not become homeowners in the future because they would not have improved their credit or financial situation to meet the new FHA guidelines, then the net expected cost of the Notice is:

(1 – Probability of foreclosure) X Benefits of Ownership + Probability of foreclosure X Cost of foreclosure.

Discounting the costs of foreclosure leads to the following estimation of the net expected costs of this Notice:

Table 8. Net Expected Cost to Society of New Underwriting Restrictions Imposed by this Notice (3% discount rate)

Delay in Years	Expected Cost of Delayed Ownership	Expected Cost of Foreclosure	Net Expected Cost of Exclusion
1	$1,795	$5,183	-$3,388
2	$3,538	$5,032	-$1,494
3	$5,231	$4,885	$346
4	$6,874	$4,743	$2,131
5	$8,469	$4,605	$3,864
6	$10,018	$ 4,470	$5,548
7	$11,521	$4,340	$7,181

The baseline expected cost of excluding a household from homeownership through this Notice is then $3,864 (five year delay).

4.4 Transfers to the FHA

The gain to the FHA of tightening its underwriting guidelines is to reduce the net losses associated with loans for which delinquency leads to foreclosure and an insurance claim. HUD bases its pro-forma budget accounting on forecasts of claim and prepayment rates calculated using the forecasting model from the independent actuarial study of the MMIF, but using the economic projections of the President's Budget. The actuarial models rely upon 30 years of actual FHA experience and are calibrated to produce loan-performance outcomes using forecasts of future economic conditions. The expected net claim expense associated with any given loan, in any given year can be represented by the following:

Expected claim amount = claim rate x (loss rate x unpaid loan balance)

The claim rate is the number of claims during a particular time period divided by the total number of loans endorsed when an annual insurance cohort was underwritten. For the FY2011 cohort, the most recent budget forecasts a 19.63 percent cumulative claim rate for loans that are subject to this Notice. We map the time trend of claim rates over the thirty year life of the loans using the timing found in the predicted cumulative claim rates in the Actuarial Report (page F-7) for all FHA endorsements in FY2011. The cumulative claim rates from the Actuarial Report are inflated by a factor of 2.76 to account for the higher expected claim rate for the higher-risk group affected by this Notice (19.63%/7.11%).

The loss rate is the net loss after property-sale recoveries, as a percentage of the unpaid loan balance on the defaulting loan.[5] Exhibit E-1 of the Actuarial Report provides a time series of loss rates. The 2000s began with loss rates as low as 32 percent, but those rates reached 56 percent by 2008. Current estimates by the FHA for the 2011 cohort are that the loss rate on average will be 47.64 percent, and that the loss rate for the excluded borrowers will be a higher 51.22 percent.

Using recent FHA data, we find that the average loan originated to the group of individuals affected by the notice is smaller than the global average: $153,000 as opposed to $176,600. We use $150,000 as our base case and assume an interest rate of 6 percent. The annual mortgage payment needed to fully amortize that amount would be $10,987. The decline in the unpaid balance is slow at first, approximately $2,000 in the first year, but by the final year it reaches $10,000.

For example, in the second year the unpaid balance would be $148,103. The claim loss would therefore be $75,858 (51.22% X $148,103). Using the year two unconditional claim rate of 1.74 percent[6], the expected claim loss on each insured loan would be $1,295. The present value of the expected claim loss for second year failures would be $1,258 per insured loan(when the discount rate is approximately 3 percent)[7]. Calculations for the first ten years are shown in Table A1 of the Appendix.

Next, we sum the present values of the expected claim losses over all years to arrive at an estimate of the total expected loss to FHA. For our example, that expected loss per insured loan is

[5] There are many expenses, in addition to the unpaid loan balance, which contribute to the final loss on a foreclosure. Those include the direct cost of obtaining title to the property (via foreclosure), interest arrears and property tax and hazard insurance payments made by the lender, the costs of maintaining and marketing the property, and the actual transaction cost and concessions associated with the final property sale.
[6] The unconditional claim rate is an annual rate consistent with the annual change in the cumulative claim rate.
[7] The time series of discount rates are those used in the Actuarial Report.

$10,268. This can be multiplied by the original number of endorsements to arrive at a total cost of homeownership failure across all loans subject to this Notice. However, whether the FHA should expect a net gain or loss depends on the mortgage insurance premium income received from the same pool of insured borrowers:

Expected loss per loan = expected claim loss – upfront premium – periodic premium income

The upfront mortgage insurance premium is equal to 2.25 percent of the original loan balance, or $3,375 for a $150,000 loan. For LTVs greater than 95 percent, which represent approximately 40 percent of the affected borrowers, the periodic income is 0.55 percent of the unpaid loan balance, and is collected until the unpaid balance reaches 78 percent of the original home value. In a specific year, the proportion of loans that pay the periodic premium is assumed to exclude all loans that go to claim in that year and plus one half of the loans that payoff throughout the year. The expected present value of the premium income stream is $5,777 (see Table A2 for an example of the calculations). The final net loss per loan to the FHA, after netting premium income against claim losses, is $4,491.

A reduction of net losses from the subject loans provides a direct benefit to the financial status of the MMIF. Over time, it is also possible that this could lead to benefits to remaining FHA-insured borrowers through lower premium rates. The annual aggregate benefits would be approximately $96 million when the size of the group affected by the new underwriting standards is 21,300.

4.5 Aggregate Impact

If there are 1.5 million loans endorsed by the FHA in FY 2011, and 21,300 loans directly affected by this Notice, the total transfer to the FHA from reduced loss exposure would be $96 million. The (net) cost of excluding the borrowers $82 million. To generate an estimate of the net benefit of the policy change would entail quantifying the qualitative argument describing the public benefits of the FHA.

Table 9. Costs and Benefits of Notice		
Per loan transfer --- avoided FHA Loss		
(1) Expected Claim Losses Avoided	$10,268	
(2) Premium Income Lost	5,777	
(3) Expected Gain to FHA	4,491	(1)-(2)
Per loan Cost --- Cost of Delaying Transition to or Preventing Ownership		
(4) Expected Social Cost of Delayed Homeownership	$8,469	
(5) Expected Social Benefit of Foreclosures Avoided	4,605	
(6) Expected Net Cost to Society	3,864	(4)-(5)
Total Costs and Benefits		
(8) Loans endorsed in FY 2011 (expected)	1.5 million	
(9) Loans affected by Notice (expected)	21,300	0.0142 X (6)
(10) FHA losses avoided	$96 million	
(11) Lost benefits to Society	82 million	

4.6 Sensitivity Analysis

A sensitivity analysis is merited because the inputs to this exercise are uncertain. The number of loans endorsed, the average amount of each loan, the claim rate, the loss rate on each insurance claim, and the discount rate are all subject to trends in the real estate and credit markets. The number of loans endorsed does not affect the per-loan net benefit but it will impact the aggregate costs and benefits, proportionally. In Table 10, the aggregate costs and transfers are shown for different numbers of loans affected by the rule. The number could vary for two reasons: either total endorsements vary or the proportion of riskier loans varies. For example, when the Notice was first considered, low FICO and high LTV borrowers constituted a greater share of FHA borrowers than they do now. The scenario of 21,300 loans excluded has been used throughout the analysis. It is reasonable to assume that loans of those characteristics could be 50 percent lesser or higher in volume due to changing economic and credit market conditions.

Table 10. Aggregate costs and transfers by loan endorsements			
Total loans affected by Notice	14,200	21,300	28,400
FHA Losses Avoided	$64 million	$96 million	$128 million
Lost Benefits to Society	$55 million	$82 million	$110 million

5 Alternatives

As mentioned in Section 2, this Notice is only one approach to restoring the MMIF capital ratio. To a large extent, many of the alternative policies are currently being pursued. This Notice is focused on riskier borrowers. One way in which this particular Notice could vary is by the stringency of the proposed underwriting standards. Consider, for example, a Notice that excluded borrowers with a FICO score below 620, a floor that is commonly used by private lenders. There are three changes from this alternative, summarized in Table 11. The first is the number of loans affected (9.26 % versus 1.42 % of all loans endorsed); second is a slightly lower cumulative claim rate; and, third, the loan size would be higher ($159,000 versus $153,000). The net effect is that the benefit to FHA in reduced losses per loan drops by approximately $1,000 to $3,336.

Table 11. Changes to Net Costs and Benefits as Result of an Alternative Policy

	Current Notice	Alternative Policy (exclude loans with FICO below 620)
Loans Excluded	21,300	138,900
Average Loan Size	$150,000	$160,000
Cumulative Claim Rate	19.63 %	17.17 %

The change in the expected claim rate will affect whether the net benefit per loan is positive or negative; the size of each loan will affect the amount of net benefits per loan; and the number of loans will affect the aggregate impact of the Notice.

The lower claim rate leads to a lower net benefit to FHA, $3,336 as opposed to the original $4,491 from the Notice. Although the aggregate benefit to FHA would be greater ($460 million) because of the higher number of loans, so would be the aggregate cost ($537 million). Furthermore, the portion of loans excluded under this alternative would be disproportionately composed of borrowers belonging to protected classes under the Fair Housing Act.

6 References

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7 Appendix

Table A 1. Calculating Present Value of Total Claims: First Ten Years

Year	(1) Unpaid Balance	(2) Loss Rate	(3) Claim (1)X(2)	(4) Annual unconditional claim rate	(5) Expected Claim (3)X(4)	(6) Discount Factor	PV Claims (5)X(6)
1	$ 150,000	51.22%	$76,830	0.14%	$ 106	1	$106.06
2	$ 148,103	51.22%	$75,858	1.74%	$1,295	0.970874	$1,257.74
3	$ 146,091	51.22%	$74,828	3.80%	$2,611	0.942596	$2,461.50
4	$ 143,960	51.22%	$73,736	3.19%	$1,948	0.915142	$1,782.45
5	$ 141,700	51.22%	$72,579	2.72%	$1,521	0.888487	$1,351.00
6	$ 139,305	51.22%	$71,352	2.27%	$1,168	0.862609	$1,007.52
7	$ 136,765	51.22%	$70,051	1.75%	$837	0.837484	$701.15
8	$ 134,074	51.22%	$68,673	1.20%	$535	0.813092	$435.07
9	$ 131,221	51.22%	$67,211	0.92%	$383	0.789409	$302.73
10	$ 128,197	51.22%	$65,663	0.76%	$298	0.766417	$228.47

Sum of Present Value of Claims Paid After Thirty Years	**$10,268**

Table A 2. Calculating Present Value of Total Premium Income: First Ten Years

Year	(1) annual claim rate	(2) annual prepayment rate	(3) Surviving Loans $[1-(1)-(2)]X(3)_{t-1}$	(4) Unpaid Balance	(5) Unpaid Balance as share of Original Loan	(6) Periodic Revenue per 95%+ LTV loan 0.55 % X (4)	(7) Expected Periodic Revenue ((3)+0.5X(2))X (6)X40% If (5)>78%, else 0	(8) Upfront Premium 2.25% X (4)	(9) Discount Factor	Present Value of Revenue (9)X(7)+ (9)X(8)
1	0.14%	1.82%	0.98	$150,000	1	$825	$327	$3,375	1	$3,702
2	1.74%	4.55%	0.92	$148,103	0.987	$815	$307		0.971	$298
3	3.80%	6.02%	0.83	$146,091	0.974	$804	$275		0.943	$259
4	3.19%	3.82%	0.77	$143,960	0.960	$792	$249		0.915	$228
5	2.72%	3.57%	0.72	$141,700	0.945	$779	$229		0.888	$204
6	2.27%	3.02%	0.68	$139,305	0.929	$766	$213		0.863	$184
7	1.75%	3.03%	0.65	$136,765	0.912	$752	$199		0.837	$167
8	1.20%	3.19%	0.62	$134,074	0.894	$737	$187		0.813	$152
9	0.92%	3.11%	0.60	$131,221	0.875	$722	$175		0.789	$138
10	0.76%	2.90%	0.58	$128,197	0.855	$705	$165		0.766	$126

Sum of Present Value of Premium Revenue After Thirty Years	**$5,777**

Table A3. FHA Single-Family Insurance Volume Forecasts September 2009				
	Counts		Dollars (bill)	
FY	All Loans	Less Streamline	All Loans	Less Streamline
2010	1,661,975	1,352,746	299.954	241.337
2011	1,437,059	1,246,460	245.996	211.480
2012	1,371,260	1,213,366	222.320	195.153
2013	1,353,761	1,150,697	223.856	188.201
2014	1,324,100	1,125,485	226.737	190.577
2015	1,310,288	1,113,745	235.490	197.904
2016	1,295,807	1,101,436	243.691	204.776