Economic Impact Analysis of the FHA Refinance Program for Borrowers in Negative Equity Positions

Summary of Impact Analysis

Modifications to the Federal Housing Administration (FHA) refinance program (FHA Refinance) to assist borrowers in negative equity positions will permit borrowers who owe more on their mortgages than their homes are worth to refinance into an FHA insured loan that more appropriately corresponds to the present value of their home. The program will require lenders to reduce first lien mortgages by at least 10 percent. The benefit of this program is to make mortgage payments more affordable and congruent with actual property values in order to prevent foreclosures that impose costs on borrowers, lenders and neighboring property owners.

HUD estimates the expected net benefit of the program to be $24,000 per refinanced loan. With an anticipated 1 million participants in Fiscal Years 2011-2013, the program will generate $24.5 billion of aggregate net benefits to society.

Overview of FHA Refinance of Borrowers in Negative Equity Positions

On March 26, 2010, the Department of Housing and Urban Development (HUD) and the Department of the Treasury (Treasury) announced enhancements to the existing Making Home Affordable Program (MHA) and Federal Housing Administration (FHA) refinance program that will give a greater number of responsible borrowers an opportunity to remain in their homes. These enhancements are designed to maintain homeownership by providing borrowers, who owe more on their mortgage than the value of their home, options to refinance into an affordable FHA loan. This opportunity allows borrowers who are current on their mortgage to qualify for an FHA refinance loan provided that the lender or investor writes down or off the unpaid principal balance of the original first lien mortgage by at least 10 percent.

Participation in the FHA Refinance program is voluntary, requiring the consent of lien holders. Additionally, in order for a loan to be eligible for refinancing through this initiative, the following conditions must be met:

- The homeowner must be in a negative equity position;
- The homeowner must be current on the existing mortgage to be refinanced;
- The homeowner must occupy the subject property (1-4 units) as their primary residence;
- The homeowner must qualify for the new loan under standard FHA underwriting requirements and possess a FICO® based “decision credit score” greater than or equal to 500;
- The existing loan to be refinanced must not be a FHA-insured loan;
- The existing first lien holder must write down or write off at least 10 percent of the unpaid principal balance;
- The refinanced FHA-insured first mortgage must have a loan-to-value ratio of no more than 97.75 percent;

- Non-extinguished existing subordinate mortgages must be subordinated and the new loan may not have a combined loan-to-value ratio greater than 115 percent; and
- For loans that receive a "refer" risk classification from TOTAL Mortgage Scorecard (TOTAL) and/or are manually underwritten, the homeowner's total monthly mortgage payment, including the first and any subordinate mortgage(s), cannot be greater than 31 percent of gross monthly income and total debt, including all recurring debts, cannot be greater than 50 percent of gross monthly income.

Economic Impact on Participating Lenders

The changes to the FHA Refinance program to assist borrowers in negative equity positions have the potential to act as a stabilizing force in a mortgage finance market that continues to experience volatility. This program is intended to maintain affordable homeownership, prevent foreclosures and mitigate the potential for "strategic defaults" wherein a homeowner determines that it is personally beneficial to default on his or her home loan rather than continue paying for a negative equity asset. The expected net benefits of the FHA Refinance program are substantial. We estimate that, with an estimated one million participants, the program will generate $24.5 billion of net benefits to society.

First-lien Lenders

The impact of the rule will be greatest for the original (1st lien) lenders that could lose the most from a foreclosure. Standard & Poor's (2008) has described the loss to lenders arising from loan/property, property maintenance, appraisal, legal fees, lost revenue, insurance, marketing, and cleanup. Market trends will affect loan loss severity: foreclosure costs vary by loan amount and property value. Interest and principal costs depend on the loan amount. Property taxes and broker fees depend on the value of the property. There are fixed costs such as legal and court fees but the major costs, interest and loss in property value, vary with the real estate market. The loan loss severity on a foreclosed loan to the 1st lien holder can be expressed as:

Loan Amount + Interest Costs – Sales Price of Foreclosed Property + Transaction Costs

Standard and Poor's (2008) estimates a 45 percent loan loss severity on subprime loans. The average loss rates on FHA loans are similar to this estimate. Exhibit E-1 of the Actuarial Report[1] provides a time series of loss rates. The 2000s began with loss rates as low as 32 percent, but reached 56 percent by 2008. Current baseline estimates for FHA loans are 44.94 percent. UBS (2008) presents a table of estimates that begin at 23 percent and range as high as 92 percent.

The loan amount less the sales price of the foreclosed property represents the loss on the unpaid balance of the loan. The unpaid balance is, on average, 104% of the original loan. The sales price of foreclosed property will have suffered from market-wide depreciation and a stress discount as a result of the foreclosure at the time of the sale. The original loan-to-value ratio for

[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

participants of the refinance program is assumed to be 80 percent. Housing price depreciation is estimated to be 17.67 percent from the NAR median sales price of existing single-family homes (a decline from $217,900 in 2007 to $179,400 in May 2010).[2] In this scenario, the amount of outstanding indebtedness owed to the 1st lien lender (83.2 percent of the original property value or 80 percent X 104 percent) would be greater than the current market value (82.3 percent of the original property value).

UBS (2008) uses a stress factor of 15 percent to estimate the additional decrease in value from selling a foreclosed property. This is consistent with NAR's estimates that distressed properties sell for a discount of between 15 percent and 20 percent.

Interest costs are a function of the unpaid balance. The UBS (2008) report assumes an interest cost of 10 percent of the loan amount. This is consistent with Standard and Poor's (2008) assumption of 13 percent.

Transaction costs are a mix of fixed costs and other costs that may vary with the loan amount, current appraised value, and sales price at foreclosure. UBS (2008) models transaction costs as a function of the property value and uses a cost ratio of 20 percent. UBS makes the caveat, however, that there is a minimum fixed cost of $20,000 for transactions cost. Standard and Poor's (2008) models the transaction costs as a function of either the loan amount and sales price: property taxes are 4 percent of property value; legal fees are 2 percent of the loan balance; broker fees are 6 percent of the property value; and maintenance is 3 percent of the loan balance.

Cutts and Merrill (2008) describe transaction costs as a proportion of total foreclosure costs. While the report is informative, it should be used with caution in estimating the actual amount of foreclosure costs in each category because as the amount of one changes so will the relative. The report is useful, however, to corroborate the other sources used in this analysis. One category of transaction cost in the Cutts and Merrill report and not in Standard and Poor's (2008) report is "utilities and other." Since the share of utilities is equal to that of preservation and maintenance according to Cutts and Merrill, it is assumed to equal 3 percent of the loan balance for the purposes of this analysis. The sum of the individual transactions costs is equal to 8 percent of the loan balance plus 10 percent of the property value.

The loss severity can more formally be expressed as:

$$L - (1 - s) \times (1 - d) \times V + i \times L + C_V \times (1 - s) \times (1 - d) \times V + C_L \times L$$

The current loan amount, or unpaid balance, is L. The property value at its original valuation is V. The rate of market-wide depreciation rate since purchase is d. The current market value of the home is thus (1-d) x V. The reduction in value as a result of the foreclosure sale occurs at the stress factor rate s. The sales price at foreclosure is (1-s) x (1-d) x V. The proportion of principal and interest costs is i. Costs are expressed as a proportion, C_V, of the foreclosure sales price and as a proportion, C_L, of the loan balance.

[2] The FHFA national price index declined by 13.1 percent over the last three years (from 221.87 in 2007:Q1 to 192.85 in 2010:Q1). The Case-Shiller index declined by 28.4 percent over the last three years --- this index covers only the twenty largest metropolitan areas.

An alternative means of expressing the loss severity is as a ratio, dividing through by the loan amount, *L*, yields:

$$1 - \left[\frac{(1-s)\times(1-d)}{LTV}\right] + i + C_L + C_V \times \left[\frac{(1-s)\times(1-d)}{LTV}\right]$$

This formulation is loosely based on the UBS (2008) report formulation, as presented in Kiff and Klyuev (2009), but with modifications to the manner in which the transaction cost and the stress factor are expressed. Substituting the estimated parameter values yields a loan-loss severity ratio of 42 percent. This analytical estimate of the loss severity ratio is not far from the one used by FHA for modeling purposes: 44.94 percent as a percent of acquisition cost.[3]

The original property is assumed to have been $217,900 from the NAR median sales price for 2007. The original first mortgage is $174,320 (80 percent X $217,900). The size of the unpaid balance is $181,293 (104 percent X $174,320). The loss severity of foreclosure is $76,685 (42 percent X $181,293).

The gain to the lender of participating in the FHA refinance program is not equal to the benefits of avoiding a foreclosure because there is a cost to participating. To enter the program, the lender must accept, as payment in full, an amount equal to no more than 90 percent of the current property value. The average new mortgage would be $163,164 (90 percent of $181,293), which is below the 97.75 percent LTV ratio and does not require an additional reduction. The net value of the new mortgage after subtracting the FHA Mortgage Insurance Premium (1 percent of the new mortgage amount, $1,632) and closing costs (2 percent[4] of the new mortgage amount, $3,263) is $158,269. The lender loses $25,571 on the original loan ($201,334-$175,775) by participating.

The loss to the lender from participating in the refinance program is smaller than the loss from a foreclosure. The net benefit from participation is $53,660 (loss from participation less the loss from foreclosure, or -$23,024 + $76,685).

[3] The loss severity ratio as a proportion of acquisition cost is smaller than when it is expressed as a proportion of the unpaid balance: an inflation factor of 1.17 so that the loss severity ratio would be 52.5 percent.

[4] FHA policy regarding closing costs has traditionally capped origination fees at 1 percent. Mortgagee Letter 2009-53 eliminated this cap on origination fees; however, it is reasonable to continue using this figure for the present exercise. The origination fee compensates the lender for administrative costs in originating and closing the loan. The origination fee covers administrative costs for taking the loan application and evaluating, preparing and submitting a proposed mortgage loan. The origination fee cannot be supplemented by other fees to cover these administrative costs, such as "application or processing" fees or broker fees.

Exhibit 1. Example of Average Lender Benefit from Participating	
Cost Category	**Cost**
Non-Participation in FHA Refinance Program	
1. Original Property Valuation	$217,900
2. Original 1st Mortgage (80% of 1.)	$174,320
3. UPB of 1st Mortgage (104% of 2.)	$181,293
4. Current Property Value (17.67% decline of 1.)	$179,400
5. Loss if Mortgage Forecloses (42% of 4.)	-$76,685
Participation in FHA Refinance Program	
6. New mortgage (90% of 3. or 97.75% of 4.)	$163,164
7. FHA Upfront MIP (1% of 4.)	$1,632
8. Closing Cost (2% of 4.)	$3,263
9. Net to Lender (6. - 7. - 8.)	$158,269
10. Lender Loss from Participation (9. - 3.)	-$23,024
Benefit of Refinace versus Foreclosure (10. - 5.)	*$53,660*

The benefits to the lender from participating could exceed the estimate of $53,660. It is possible that the loss of property value via foreclosure in target areas of the program will be substantially more than the $76,685 estimate. First, in a distressed market, the loss of value on the property could be higher. Vacant homes in distressed neighborhoods are also more likely to suffer vandalism, forcing the lender to incur property-rehabilitation expenses. Thus, the final loss to the lender from foreclosure would be greater than the $76,685 estimate.

Impact on Second Lien Lenders

Impeding a refinancing deal may be in the second-lien lender's interest. A subordinate lender stands to lose the entire value of the loan from a foreclosure because repaying the first-lien lender takes precedence. The second-lien loan is assumed to be 20 percent of the original property value ($217,900) or $43,580. The average unpaid balance is 98 percent of the original balance for junior liens, or $42,708. The decline in value of the property from the time of the original sale is assumed to be 17.67 percent (a reduction of $38,500), which is almost as great as the second-lien loan amount. Facing such a situation, second-lien lenders may prefer to keep delinquent loans on their books in the hope that the housing market will recover in the near future.

The program offers participation incentives to second-lien lenders in order to make the refinancing deal more attractive than a foreclosure. Existing second mortgage lien servicers will be entitled to a one time incentive of $500 for each successful closing. Existing subordinate lien investors will be entitled to an incentive based on the combined loan to value of the existing lien and all senior liens associated with the mortgage.

The investor incentive payment is based on the CLTV ratio of the property prior to the FHA Refinance. The CLTV is the ratio of the current total UPB of the existing first lien and the current total UPB of the second lien divided by the current market value of the property. Current market value will be determined by using the FHA appraisal obtained by the originating FHA Refinance lender. Investors will receive incentive payments based on the delinquency status of the loan, the CLTV ratio and the amount of the principal extinguishment as described below.

Exhibit 2. Treasury FHA Refinance Compensation Per Dollar of UPB Extinguishedin CLTV Range (Loans Less than or Equal to Six Months Past Due)

CLTV Range	Compensation Per Dollar of Extinguishment
105% to <115%	0.21
115% to 140%	0.15
>140%	0.10

With respect to loans which were less than or equal to six months past due at all times during the 12 month period prior to the FHA Refinance closing date, second lien investors will be entitled to receive $0.21 per dollar of principal extinguishment equal to or greater than 105 percent and less than 115 percent CLTV ratio; $0.15 per dollar of principal extinguishment equal to or greater than 115 percent and less than or equal to 140 percent CLTV ratio; and $0.10 per dollar of principal extinguishment in excess of 140 percent CLTV ratio. With respect to loans which were more than six months past due at any time during the 12 month period prior to the FHA Refinance closing date, irrespective of CLTV range, second lien investors will be paid $0.06 per dollar of principal extinguishment and will not be eligible for incentives in the above extinguishment schedule.

In the example provided in this analysis, the CLTV before the write-down of the first mortgage is 125 percent so that the incentive for principal reduction would be 15 cents for every dollar. Assuming that the second lien holder elects to extinguish the entire principal, the transfer to the second lien lender would be $6,406 (0.15 X $42,708).

Benefits: Avoidance of Deadweight Loss

A benefit of the program is the prevention of foreclosures, which have economic costs. The Joint Economic Committee of the U.S. Congress (April 2007) estimates the cost per foreclosure at $80,000 by adding the impacts on consumers, lenders, property markets, and local governments. Some of these impacts are more appropriately classified as a transfer in that the gain of one party matches the loss of another. A detailed description and discussion of the Joint Economic Committee analysis is provided below.

Lender loss

In the scenario described above, there is a net gain to the lender of $53,660 by paying a cost of $23,024 to avoid a $76,685 loss[5]. While the participation of the lender is necessary to achieve the benefits of the goals of the program, the gain by the lender cannot necessarily be counted as social surplus. Much of this benefit is a transfer. If there had not been a foreclosure, the interest would have been paid by the borrower and not the lender. The same logic applies to taxes, insurance, utilities, and perhaps to a lesser extent preservation and maintenance (discussed below). The foreclosure affects the determination of which party bears the burden of a specific cost, but not the aggregate cost.

Transaction costs borne by the lender that *should be* considered as deadweight loss include legal fees, court fees, and broker fees. Commissions and court and legal fees would not have been paid, and do represent transaction costs that decrease social welfare. The deadweight loss from transaction costs is thus the sum of 2 percent of the loan balance for legal fees and 6 percent of the housing price for brokers' fees. The total of deadweight loss avoided per loan is $12,775, or approximately 7 percent of the unpaid balance. The estimates from Cutts and Merrill (2008) imply that 49.1 percent of other costs to the lender represent a deadweight loss, which is similar to the 41.3 percent share developed in this analysis using estimates from Standard and Poor's (2008).

The reduction in property value from being forced to sell a home because it is foreclosed upon (stress discount) could be a source of deadweight loss. It is not obvious, however, whether or why the stress discount should be counted as a cost rather than a transfer. While the seller will lose from a reduction of value, there will be another investor who may gain from the opportunity to purchase at a lower price.

There is evidence that properties lose value that they would not have if they had been traded in another circumstance. Pennington-Cross (2006) finds that REO properties suffer a 22 percentage point discount in appreciation as compared to the metropolitan average. One obvious explanation for this result is one of reverse causation: a default may occur because appreciation in a particular submarket lags behind the metropolitan average. There are two other theoretical explanations for this empirical result that provide insights into economic behavior.

First is the possibility that in an environment of asymmetric information, a foreclosure is a signal of a "lemon" property, in which case the buyer is compensated through a lower purchase price for taking a risk. One could argue that this discount should be small when investors are savvy. In the case of a housing market with a large inventory of foreclosed homes, this discount may become larger as the market is thinner and as a property spends more time on the market (delaying the receipt of surplus for the buyer).

[5] The Joint Economic Committee (2007) study cites an analysis from the Federal Reserve Bank of Chicago that reports that lenders alone can lose $50,000 per foreclosure (Hatcher, 2006). This estimate of the $50,000 loss on GMAC-RFA loans predates the housing market crisis. This is critical because one of the largest factors leading to lender loss is the loss in equity.

A second explanation of the stress discount involves an avoidable deadweight loss. Frequently, before owners sell a home, they invest a great deal in the structure, at least in cosmetic aspects of the property. An owner who knows that he or she will default will cease to maintain and upgrade the property, and may even actively disinvest (sell appliances or fixtures, for example). The depreciation to the property is structural and real: the new owner must invest resources to restore the property to its pre-foreclosure state. Harding et al. (2000) find evidence of this externality: borrowers with high loan-to-value ratios spend, on average, 19 percent less on maintenance than those with lower LTV ratios. Knowledge of impending default would increase the overuse of housing. By refinancing, the program could eliminate some of the loss associated with the depreciation of the structural value. We assume that this structural damage at one-half of the stress discount on the property, which yields $13,455 (1/2 X 15% X $179,400).

We have estimated two sources of real social benefits: preventing transaction costs that would not have been paid without the foreclosure and preventing the real structural loss surrounding a foreclosure. The social surplus per lender for a foreclosure avoided is $26,230 ($12,775 + $13,455) or 48 percent of the total gain to the lender.

Neighborhood Effects

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 Joint Committee of the U.S. Congress (2007) cites an estimate of $1,508 by Immergluck and Smith (2006) of the negative externality of a single foreclosure on a neighboring property. This figure of $1,508 is included in the oft-cited total cost of foreclosure of nearly $80,000 from the Joint Committee. If, however, one were to take the Immergluck and Smith study seriously the external cost of a foreclosure on surrounding properties would be much greater. Their study reports a reduction of 0.9 percent of value for all properties within one-eighth of a mile. Given that there are 31.4 acres in a radius of one-eighth of a mile and a reasonable density is 3 units per acre, this effect would extend 94 properties. For example, if the average sales price were $179,400[6], then the aggregate externality would be $152,095. Immergluck and Smith report aggregate impacts of a similar size ($159,000).

A similar study by Leonard and Murdoch (2007) in Dallas County, Texas found a negative one percent impact on properties within 250 feet of a foreclosed property. There are some obvious difficulties with a hedonic estimation of the impact of a foreclosure. Although it is reasonable to expect that a neighboring foreclosure will negatively affect property values, it may be just as correct to interpret the foreclosure as an excellent indicator of a declining property submarket. Foreclosures, after all, are not independent events but are caused by economic stress and price depreciation. The causality may be reversed. Thus, we should be cautious in applying these results. In an attempt to resolve this reverse causality, Schuetz et al. (2008) control for past trends in sales prices, and find evidence of discounts in home sales in proximity to foreclosures. They also find that the effect may depend on the number of foreclosures and thus may not be linear.

[6] The median price of existing homes sold for May 2010 as reported by the National Association of Realtors® (NAR).

Kiefer and Kiefer (2010) apply a simultaneous equation system to model the co-movement of foreclosures and house price changes and examine the spatial pattern of the relationship between home foreclosure rates and house price appreciation across states in the U.S. Their estimates indicate that a 1% negative national foreclosure shock leads to a 16.73% increase in U.S. house prices. These findings support the local studies described above and provide a rationale for federal programs to stabilize property and mortgage markets.

One approach to using the results from this literature would be to limit the 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 $14,531 (0.9 percent X $179,400 X 9).

Consumer loss

The foreclosed-on household pays moving costs, legal fees, and administrative charges of $7,200 (Moreno, 1995). These transaction costs represent a loss for the foreclosed upon household. One could argue that the individuals who earn income at a foreclosure benefit from the foreclosure. While this may be the case, the size of the producer surplus will be small, or nonexistent (depending on marginal costs), relative to the price of the service itself. Additional costs include the emotional stress imposed on affected family members and the higher cost of housing in the future due to a poor credit rating. Because the analysis of Moreno was completed in 1995, we increase the estimate of $7,200 to $10,300 to account for inflation from 1995 to mid-year 2010 (43.05 percent).

Costs of Program

While the refinance program is expected to generate a high level of benefits per refinancing, there will also be costs associated with the program: administrative costs (both private and public) and the inefficiencies of moral hazard.

Administrative Costs

The administrative costs of the program include the private costs of originating the new loan. These transaction costs are equivalent to the closing cost fee of $3,263 to pay for appraisal, paperwork, and legal fees. The FHA mortgage insurance premium is not included as a cost of the program. Instead, it is considered as a transfer to the FHA and is accounted for in the credit subsidy rate. An additional cost is a servicer incentive of $500 to pay for administrative costs. The cost per refinance to the private sector is thus $3,763. The net efficiency ($47,298) from the lender's refinancing is the avoidance of deadweight loss ($51,061) less administrative costs.

There will be minor costs borne by the government as a result of this program. Data collection will be one of those costs. In addition to the data collected at insurance application, FHA will collect the following information on the first lien being refinanced: unpaid principal balance and the write-down/write off amount. Modifications to existing information systems will be needed

to accommodate the extra fields. The average cost per refinancing is expected to be negligible given the forecasted level of participation.

Incentive Effects: Moral hazard

There are potential costs of this program in terms of encouraging risky behavior on the part of banks and borrowers. With the knowledge that the government may intervene to reduce the costs of foreclosure, both banks and borrowers may be less careful in the future about loans that they undertake. This particular program, however, is not likely to have a significant effect on the public's general perception of the government's willingness to rescue households and firms in financial distress because it is only one of many federal efforts to stabilize housing and credit markets.

Transfers

Transfers to Lenders

As described in the previous section concerning deadweight loss, a large portion (48 percent) of the gain to the lender represents a benefit to society. The remaining 52 percent, or $27,430, is counted as a transfer to the original lender. This portion, although a gain for the original lender, does not result in a welfare gain for society because for every dollar gain there is a corresponding loss for another party. The entire incentive payment to second lien lenders is counted as a transfer.

Transfers to Local Governments

The local government faces direct costs from a foreclosure through lost property taxes from the foreclosed property, unpaid utility bills, property upkeep, policing, legal costs, building inspections, an increase in demand for social services, and, in some cases, demolition. The public administrative costs of a foreclosure borne by local governments can be seen as a deadweight loss of public resources that could have been used for different purposes. The Joint Committee (2007) uses an estimate of $19,227 for the average direct cost per foreclosure to local governments from a study by Apgar and Duda (2005). This figure is based on Scenario 6 from the Apgar and Duda (2005) study in which the structure is demolished by the local government. A more typical situation would be Scenario 4 in which the property is vacant for a period of time, there is modest criminal activity and the property is sold at auction, resulting in costs to the local government of an average of $6,200 (Scenario 4).

Local governments provide public goods such as environmental amenities, public safety, roads, and school quality to remedy classic market failures. Many of these local public goods would be provided at a suboptimal level during a foreclosure crisis by a jurisdiction with a strong reliance on property tax revenue and a balanced budget requirement. An increase in provision should yield a surplus for the community. Data from the Census of Governments provide a means of estimating the proportion of expenditures on public goods: libraries, parks and recreation, highways, sewerage, hospitals, fire protection, police protection, and education add up to 69.4 percent of local public expenditures. By preventing a foreclosure, this program allows local governments to spend revenue in a manner that generates social surplus. Rather than making a

statement as to whether an increase in local government spending (or a decrease in local taxes) represents an increase in efficiency, the $6,200 is counted as a transfer to local governments.

Transfers from Taxpayers

The cost of the FHA Refinance program to the taxpayer is the subsidy paid by Treasury to cover FHA's losses on conveyance claims (calculated on a net present value basis excluding administrative costs). FHA's standard mortgage insurance program currently operates at a negative subsidy rate, meaning that it generates sufficient revenues to cover all costs. However, for the negative equity refinance program, HUD estimates a *positive* credit subsidy rate because of the high forecasted program claim rate resulting in higher expected costs. Based upon FHA's forecasts for program participation and expected claim rates, the estimated credit subsidy for the program for FY 2011 is 2.58%.[7] The estimated subsidy to the FHA, in terms of net present value of all program cash flows, per refinancing is thus $4,083 (2.58 percent times the new mortgage net of costs, or $158,269).[8]

Expected Benefits, Costs, and Transfers per Refinancing

The sum of all benefits per refinance (deadweight costs avoided by the prevention of a foreclosure) is $51,061. This benefit will not be realized, however, for every household assisted. First, not all borrowers would have defaulted without the assistance from this program. There are significant losses for a consumer to a foreclosure (described above). A household will always need shelter and may be attached to their current home and neighborhood. A household may be able to recover the loss in equity by delaying the sale of their home until the market has recovered. Depending on trends in housing prices, a strategic default may be a foolish decision: a household would have to be significantly underwater for a default to occur purely for investment purposes. We expect, however, that negative equity is a contributing factor to default along with other factors, most notably a decline of household income.

It is expected that 35 percent of all borrowers would not have gone into foreclosure. Only 65 percent of the participants of the program can be considered to be rescued from a foreclosure[9]. Second, some households will default on their new FHA loan and eventually lose their homes in foreclosure even after the loan writedown. Although the program maintains FHA's requirement that new loans be based on a family's long-term ability to repay the mortgage, some foreclosure is experienced on all types of FHA loans. Those households that are foreclosed upon after refinancing cannot be considered to be generating benefits.

The expected benefit per refinancing is equal to our estimated benefit multiplied by the probability that there will be a foreclosure without the program (65 percent) times the probability that the property does not go into foreclosure after the writedown (80 percent), or by a factor of 52 percent. The expected benefit is $28,252. The costs of a refinancing are paid at origination

[7] As of June 25, 2010, this credit subsidy rate has not been approved by OMB.
[8] Treasury is to make the program budget neutral via a TARP allocation for this purpose.
[9] J.P. Morgan Securities estimated that there were roughly 50% to 60% of prime borrowers with positive incentive to walk away and as high as 80% to 90% of option ARM and subprime borrowers would actually default. The estimate of 65 percent is a conservative estimate based on the JPM analysis.

and are not affected by whether a borrower eventually defaults. Costs remain constant at $3,763 and so the net expected benefit per refinancing is $24,489.

The first lien lenders will retain their full benefit of $53,660 per loan sent through the program because these benefits are not affected by foreclosures on the new loans. However, the components (benefits and transfers) of the lender gain will vary with the foreclosure of a loan. Because the amount of the lender gains that consists of social benefits declines with foreclosures, the amount that consists of pure transfers will increase.[10] For example, consider the welfare gain from preventing the stress discount resulting from physical depreciation to the property. The original lender gains because preventing the stress discount limits the loss on the unpaid balance. Society gains because resources that would otherwise have had to be invested in rehabilitating the property can be used for other purposes. If the borrower defaults on the new loan and is foreclosed upon, then only the original lender will gain. The transfer to the lender declines with the probability that the borrower would not have defaulted without the program. At a rate of 65 percent, the expected gain of the lender is $34,879 and the transfer is $21,239.

Exhibit 3. Expected Benefits, Costs and Transfers per Refinancing

Category of Impact	Impact per Assisted Household ($)	Expected Benefit per Refinancing at Program Foreclosure Rate of 20% ($)
Gain to Lender	53,660	34,879
Source of Benefits (Avoidance of Deadweight Loss)		
Original Lender	26,230	13,640
Consumer	10,300	5,356
Neighboring home value	14,531	9,256
Total Benefits	51,061	28,252
Costs of New Loan		
Closing Costs	3,263	3,263
Servicer Incentive	500	500
Total Costs	3,763	3,763
Transfers		
Transfer to Original lender	27,430	21,239
Transfer to Local Governments	6,200	4,030
Transfer to Second Lien lender	6,406	6,406
Subsidy to the FHA	4,083	4,083
Net Impacts		
Net Benefit	47,298	24,489
Net Transfer to Public	8,523	6,353

[10] Transfer to lender = total lender gain – efficiencies generated by lender gain

The net expected transfer to the public is equal to the sum of the transfer to the local governments plus the transfer to the second lien lender less the subsidy to the FHA, or $6,353. The transfer to the lender is not included in this calculation because it is composed of transfers among the public. For example, one of the lender's gains is the avoidance of loss on the unpaid balance as a result of market-wide price depreciation. However, a foreclosure can be an opportunity, which they would be denied through this program, for another investor to purchase a property at a reduced price.

Aggregate Impact

While the benefits per refinance transaction under this program are substantial, the aggregate impact depends upon participation. The success of the FHA Refinance program will largely depend upon the interest of consumers in refinancing their underwater mortgages and the willingness of servicers and investors to permit such refinancing via this program.

Based upon a recent report from CoreLogic (2010), Treasury estimates that nearly 11.2 million borrowers in negative equity positions could potentially be helped through the FHA Refinance program, but that only about 9 percent, or approximately one million households, will actually refinance through this program due to various factors, some of which are discussed below.

Despite HUD's confidence in the methodology used for determining its program participation estimate, it should be noted that due to the voluntary nature and unique requirements of the program a definitive estimate of the level of participation can not be made. In addition, participation will be influenced by external factors: for example, a positive turnaround in the housing market would dampen the demand for the program. Therefore, HUD has also evaluated program impacts based upon a low end participation level of 500,000 and a high end level of 1,500,000.

There remain reasons that program participation may be less than that forecasted by HUD. Lenders may not find sufficient incentives to participate, even compared with the costs of foreclosure. Some lenders may determine that enduring the risk of potential foreclosure is preferable to assuming a loss of at least 10 percent of a mortgage's principal balance. Additionally, foreclosure and the FHA Refinance program are not the only alternatives available to a lender. The lender also has the option of proposing to the borrower a workout plan of the lender's own design.

Some features of the program could discourage homeowners from participating as well. First and foremost, participation in this program will likely result in adverse impacts on borrowers' credit ratings. As a result, some borrowers, especially those that intend to remain in their homes for a longer duration and are only marginally underwater, may determine that maintaining their credit rating is preferable to the revaluing of their home for market conditions.

If the Hope for Homeowners program were to be used as a guide, the predicted number of refinances via this program would be negligible. There are reasons to expect that this program will be more popular. First, the number of borrowers in negative equity positions has increased since the time when H4H was introduced. Second, this refinance program doesn't include the

shared equity provisions that were unattractive to potential H4H participants. Third, the LTV of the first lien and CLTV for this program are higher than for the H4H program. Fourth, unlike the loans refinanced through this program, the Hope for Homeowner loans are pooled separately from standard MBS in Ginnie Mae II pools so that the interest rate would be higher on H4H loans.

If the level of participation proves to be that estimated by Treasury, then the gross benefits of the program would be approximately $28.3 billion, the total costs $3.7 billion, and the net benefits to the public would be $24.5 billion at a 20 percent program foreclosure claim rate. Exhibit 3 displays the aggregate benefits, costs, transfers to lenders, and transfers to the FHA of program participation based on various estimated participation levels.

Exhibit 4. Aggregate Expected Benefits Costs and Transfers (not discounted) in millions of $ (at 20 percent foreclosure rate)

Number of Participants	Total Efficiencies Generated	Total Costs	Net Benefits	Transfers to Lenders	Transfer to FHA
100,000	2,825	376	2,449	2,124	408
500,000	14,126	1,882	12,244	10,620	2,042
1,000,000	28,252	3,763	24,489	21,239	4,083
1,500,000	42,378	5,645	36,733	31,859	6,125

In the above estimate, it is assumed that all participants of the program refinance in the first year of the program. The present value of these amounts will be different, however, as later years are discounted when participation is dispersed over the total number of years in which the program is active. HUD anticipates that 60% of the total endorsements under this program will occur in FY 2011, 20% in FY 2012 and 20% in FY 2013. Participation is expected to be front-end loaded because borrowers will find immediate participation optimal to delaying participation in the program. The housing market shows signs of a weak recovery: although housing prices are beginning to appreciate, home sales are still sluggish. As home prices and incomes rise, fewer borrowers will qualify and fewer will want to refinance through the FHA program. Discounting the second and third years by 7 percent (according to OMB guidelines) yields a slightly reduced estimate of the aggregate impact: at one million participants over the course of the program, the gross benefits of the program would be approximately $27.1 billion, the total costs $3.6 billion and the net benefits to the public would be $23.5 billion at a 20 percent program foreclosure claim rate. Exhibit 4 displays the aggregate benefits, costs, transfers to lenders, and transfers to the FHA of program participation based on various estimated participation levels. The total transfer to lenders would be $20.4 billion and the transfer to the FHA $3.9 billion. The total transfer to second lien lenders would be $6.2 billion and to local government $3.9 billion. The net transfer to the public would be $6.1 billion.

Exhibit 5. Aggregate Expected Benefits Costs and Transfers (discounted) in millions of $ (at 20 percent foreclosure rate)						
Year	**Number of Participants**	**Total Efficiencies Generated**	**Total Costs**	**Net Benefits**	**Transfer to Lenders**	**Transfer to FHA**
One Million Participants Scenario						
1st Year	600,000	16,951	2,258	14,693	12,744	2,450
2nd Year	200,000	5,281	703	4,577	3,970	763
3rd Year	200,000	4,935	657	4,278	3,710	713
Total	1,000,000	27,167	3,619	23,548	20,424	3,927
500,000 Participants Scenario						
1st Year	300,000	8,476	1,129	7,347	6,372	1,225
2nd Year	100,000	2,640	352	2,289	1,985	382
3rd Year	100,000	2,468	329	2,139	1,855	357
Total	500,000	13,584	1,809	11,774	10,212	1,963

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