

Fannie Mae's Analysis Regarding Principal Forgiveness and Treasury's HAMP Principal Reduction Alternative (HAMP PRA) Program

RESPONSE TO FHFA REQUEST May 9, 2012

This paper contains a number of estimates, forecasts, analyses, opinions, expectations and other forward-looking statements, including statements regarding our expectations regarding the performance of loan modifications under varying circumstances and the potential impact of these modifications on our business. These estimates, forecasts, analyses, opinions, expectations and other forward-looking statements are based on the company's current assumptions regarding numerous factors and are subject to change. Actual outcomes may differ materially from those reflected in these forward-looking statements due to a variety of factors, including, but not limited to home price changes, unemployment rates, economic growth rates, other macroeconomic variables, government policy, servicer performance, social behaviors, additional data on loan modification performance, and many other factors.

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Fannie Mae’s Analysis Regarding Principal Forgiveness and Treasury’s HAMP Principal Reduction Alternative (HAMP PRA) Program

Executive Summary

The use of principal forgiveness in mortgage loan modifications continues to be actively debated among policy makers, servicers, and investors. Many have asserted that the performance of modified loans would be greatly improved if principal forgiveness was more frequently used as a part of the modification.

From January 2009 through December 2011, Fannie Mae has completed more than one million mortgage loan workouts, including more than 849,000 home retention solutions – such as loan modifications, repayment plans, and unemployment forbearances – that help homeowners avoid foreclosure and stay in their homes. In 2011, Fannie Mae completed more than 328,000 workouts, including more than 248,000 home retention solutions.

Fannie Mae Modification Statistics 2009-2011	Loan Workouts
HAMP	309,580
Fannie Mae Proprietary Modifications	405,841
Repays, Unemployment Forbearances & Other	134,235
Total Home Retention Solutions	849,656
Short Sales	176,877
Deed in Lieu	17,964
Total Foreclosure Alternatives	194,841
Total Completed Workouts	1,044,497

Fannie Mae’s modifications are designed to make the monthly payment affordable to the borrower - we incorporate capitalization of arrearages, interest rate reduction, term extension and principal forbearance,¹ as needed, to achieve this. Our focus on the modification payment is based on our experience in monitoring the performance/effectiveness of modified loans. We have found that modification performance is highly influenced by the size of the payment reduction, the affordability of the modified payment, the number of months delinquent the loan was at the time of modification, and the comparability of the modified payment to the cost of alternative equivalent housing. Our modifications are not focused on reducing the size of the loan (principal forgiveness).

¹Principal forbearance defers a portion of the unpaid principal balance to the end of the term of the loan. Interest does not accrue on the amount deferred, and the borrower remains obligated to repay the amount deferred when the loan is terminated.

Advocates of principal forgiveness argue that borrowers are more likely to continue to make payments if they have a reasonable expectation that the value of the home will exceed the size of the mortgage in a reasonable length of time. If this assertion were true, then one would expect that modified loan performance would be strongly related to the current loan-to-value ratio (LTV) of the mortgage of Fannie Mae borrowers. In fact, it is not. We find that across a wide range of LTVs, the percentage of loans that are current after one year is fairly constant. In addition, a multivariate analysis (detailed in Appendix A) shows only a weak relationship between the current LTV of the loan and post-modification performance.

In 2010 and 2011, Fannie Mae conducted two experiments to test the effectiveness of adding principal forgiveness to modifications completed under the government's HAMP program.

- The first experiment tested the impact of the offer of principal forgiveness on the take-up rate of modification solicitations. One group of borrowers (the control group) was offered standard Home Affordable Modification Program (HAMP) modifications. The other groups were offered modifications that would include principal forgiveness. The response rates for both populations were very small. Including the potential for principal forgiveness in the solicitation to borrowers did not create a statistically significant improvement in completion rates or in the intermediate milestones in the HAMP modification process.
- The second experiment focused on re-default rates. One group of randomly selected borrowers received HAMP modifications that included principal forgiveness. Eight months after the modification, the percentage of borrowers who are current on their modified loan in the control group and principal forgiveness group remains virtually identical, 83% in the principal forgiveness group vs. 82% in the control group.

The nature of the borrowers and loans in Fannie Mae's book of business are fundamentally different from many of the borrowers and loans in private label securities (PLS). This may explain why Fannie Mae's experience with principal forgiveness differs from others. Much of the publicly available research analysis on loan modifications is based on data about loans in PLS. On average, loans in PLS have higher note rates, LTVs, and delinquency rates than loans in Fannie Mae's book. They also have significantly worse post-modification performance.

During the course of our analysis of principal forgiveness modifications, we reviewed the potential financial impact on Fannie Mae loans. We found that the cost of forgiving principal down to 115% mark-to-market LTV (MTMLTV) for current and performing underwater borrowers (1.1 million) would be substantial (almost \$40 billion).² We also analyzed the net present value (NPV) benefit of Treasury's recent offer to pay the GSEs

² Exclusive of accounting impact.

investor incentives under the HAMP PRA program, and found that the benefit to Fannie Mae would be around \$7,500 per HAMP PRA modification when compared to the standard HAMP modification.

We considered the potential that forgiving principal would cause borrowers who are underwater but able to pay their loans to stop paying – the moral hazard associated with the introduction of a principal forgiveness modification. We found that, using conservative assumptions, if 4 - 5% of our current underwater borrowers who would have otherwise performed on their mortgages stopped paying in order to try to qualify for a principal forgiveness modification, it would eliminate any NPV benefit of a principal forgiveness program to Fannie Mae.

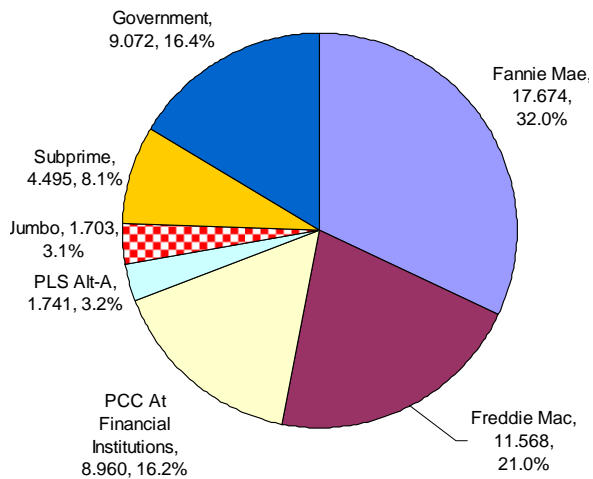
One can explore ways to try to mitigate the moral hazard risk - such as limiting the publicity around any such program; or bounding eligibility criteria by such things as timing of delinquency (i.e., borrower must be 60+ days delinquent at time of program announcement), geography, underwater severity, and/or others. However, any such attempts to mitigate moral hazard would not fully address the risk.

Fannie Mae's Book of Business Profile

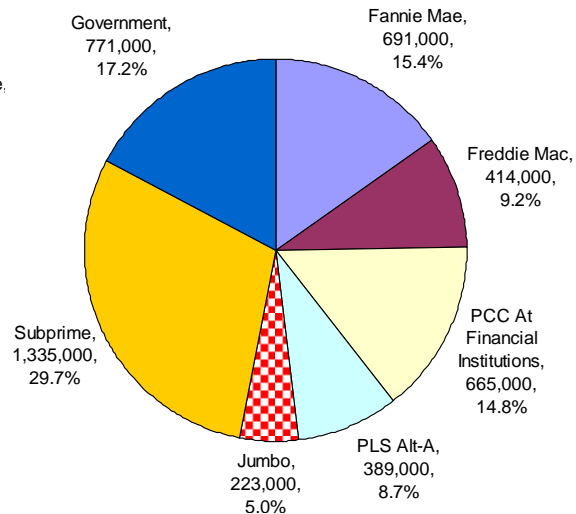
As of December 31, 2011, Fannie Mae's Single Family book of business had 17.7 million loans (\$2.7 trillion unpaid principal balance (UPB)). Of those, 93% (16.5 million) were current and performing, and only 3.9% (almost 691,000) were seriously delinquent (90+ days). 1.4 million of Fannie Mae's loans (7.9%) are underwater (defined herein as >115% MTMLTV (loans possibly eligible for HAMP PRA)). 77% of Fannie Mae's underwater loans are performing. Most of our seriously delinquent underwater loans (84%) are secured by properties located in Arizona, California, Florida and Nevada.

Fannie Mae's market share of seriously delinquent loans is significantly less than its share of total outstanding mortgages. This is a reflection of the higher initial credit quality of borrowers with Fannie Mae loans and the higher concentration of fixed-rate loans than loans in PLS.

Total Mortgages Outstanding
(55.2 million loans, units on chart are millions)



Seriously Delinquent Loans
(4.5 million SDQs)



Notes: Seriously Delinquent Loans include loans when the borrower has missed three or more consecutive monthly payments. Data as of December 2011. PCC are Prime Conventional Conforming loans. PLS are private label securities. Sources: LoanPerformance First American Corelogic, HOPE NOW, FHA, VA, Fannie Mae, Freddie Mac, and Federal Reserve's FOF. Subprime and Jumbo categories include loans underlying Private Label Securities and whole loans held by financial institutions; any Fannie Mae investment in Subprime loans is reflected only in Fannie Mae's segment. Dollar balances of all combined loan sectors, not shown here, match to Federal Reserve's FOF SFR mortgage MDO. In the Mortgage Bankers Association's quarterly National Delinquency Survey, the counts of mortgages serviced as of the end of December 2011 was 42.9 million. Since the survey covers about 88% of the market, one could estimate the total GSE share of Total Mortgages Outstanding to be 60%.

Fannie Mae's Modification Strategy

Over the past few years, Fannie Mae's credit loss management efforts have evolved with the needs of its borrowers. Our loss mitigation tools include, among other things, repayment plans, modifications, unemployment forbearance, short sales, and deeds-in-lieu of foreclosure, including deeds for lease. We primarily offer HAMP and Fannie Mae standard modifications (announced as part of the Servicing Alignment Initiative in 2011 and the model for Treasury's recently announced HAMP Tier 2). These modification programs focus on achieving a reasonable and desirable payment for the borrower and include capitalization of arrearages, interest rate reduction, term extension and principal forbearance, as needed. Our modifications do not include principal forgiveness.

We have found that the success of our mortgage loan modifications is primarily driven by two factors.

- *Ability to pay:* HAMP modifications focus on reducing the borrower’s monthly payment to a level deemed affordable for the borrower.
- *Cost of alternative housing:* Fannie Mae standard modifications are used for borrowers who are unable to make their existing payments and are not eligible for HAMP. These modifications adjust the payment to make it consistent with the current value of the property and prevailing mortgage rates. With this modification, the borrower’s payment is consistent with the payment that they would make if they were to purchase or refinance the house in today’s market and typically provides enough payment relief to make the payment affordable.

Importantly, both of these factors focus on the size of the monthly payment, not how that payment amount is achieved. Our data indicates that over the first 12 months (the period during which we have a sizable amount of performance data), it is the size of the payment relative to income, the cost of alternative housing, and the post-modification payment that determine performance.

From the beginning of 2009 through year end 2011, Fannie Mae has completed over 715,000 modifications. As of year end 2011, Fannie Mae modifications are performing well. As our modification programs have been standardized and as servicer execution has improved, modification performance has improved.

% Current and Performing	2009 Q3	2009 Q4	2010 Q1	2010 Q2	2010 Q3	2010 Q4	2011 Q1	2011 Q2	2011 Q3
3 months post modification	57%	78%	80%	79%	78%	81%	84%	84%	83%
6 months post modification	47%	69%	71%	73%	75%	77%	78%	79%	n/a
9 months post modification	45%	62%	65%	71%	73%	72%	75%	n/a	n/a
12 months post modification	42%	58%	65%	70%	70%	69%	n/a	n/a	n/a
15 months post modification	40%	60%	63%	66%	67%	n/a	n/a	n/a	n/a
18 months post modification	41%	58%	60%	65%	n/a	n/a	n/a	n/a	n/a
21 months post modification	40%	56%	59%	n/a	n/a	n/a	n/a	n/a	n/a
24 months post modification	39%	55%	n/a	n/a	n/a	n/a	n/a	n/a	n/a

As of December 31, 2011

Source: 2011 Fannie Mae 10-K Credit Supplement

If the performance of modified loans is linked to principal forgiveness, then one would expect that performance would vary with the MTMLTV of the modified loan. In fact, Fannie Mae’s data shows that the performance of modified loans is not significantly related to the loan’s MTMLTV.

The table below shows the percentage of modified loans that are still current 12 months after modification for Fannie Mae HAMP modifications and Fannie Mae proprietary modifications that included a trial period and were completed in 2010 or later. In 2010, Fannie Mae instituted more uniform rules and practices for non-HAMP Fannie Mae

standard modifications, including trial periods. The introduction of these standardized rules significantly improved the performance of modified loans and provided consistency in the offers made to borrowers.

12 Month Modification Re-performance by Mark-to-Market Loan-to-Value Ratio

MTMLTV at time of Modification	Permanent HAMP		2010 Fannie Mae Permanent Proprietary Modifications (with Trials)	
	% of Total	Current and Performing(1)	% of Total	Current and Performing(1)
Current LTV <=80%	19%	76%	22%	72%
LTV>80 and <=90	13%	75%	14%	72%
LTV>90 and <=100	15%	73%	16%	71%
LTV>100 and <=125	26%	74%	25%	72%
LTV>125 and <=150	13%	76%	11%	74%
LTV>150 and <=175	7%	75%	6%	74%
LTV>175 and <=190	2%	74%	2%	74%
LTV>190	4%	72%	4%	70%

(1) Includes loans that are paid off

For loans modified by Fannie Mae, the post-modification LTV is not a meaningful predictor of modification performance over the first 12 months (the period during which we have a sizable amount of performance data). This is, in part, a reflection of the borrowers who receive modifications. Borrowers who have requested modifications, worked through the modification process and completed a trial period have demonstrated a desire to stay in their home regardless of the MTMLTV of their loans.

Other borrower and payment factors are, in fact, strongly related to modification performance. For example, the table below shows the performance of modified loans as a function of the size of the payment change.

12 Month Modification Re-performance by Change in Monthly Principal and Interest Payment

Monthly P&I Change	Permanent HAMP		2010 Fannie Mae Permanent Proprietary Modifications (with Trials)	
	% of Total	Current and Performing(1)	% of Total	Current and Performing(1)
Payment Increase	0%	59%	1%	44%
Payment Decrease 0 <-10%	8%	60%	7%	57%
Payment Decrease 10 <-20%	12%	65%	12%	62%
Payment Decrease 20 <- 30%	16%	69%	15%	69%
Payment Decrease > 30%	64%	79%	64%	79%

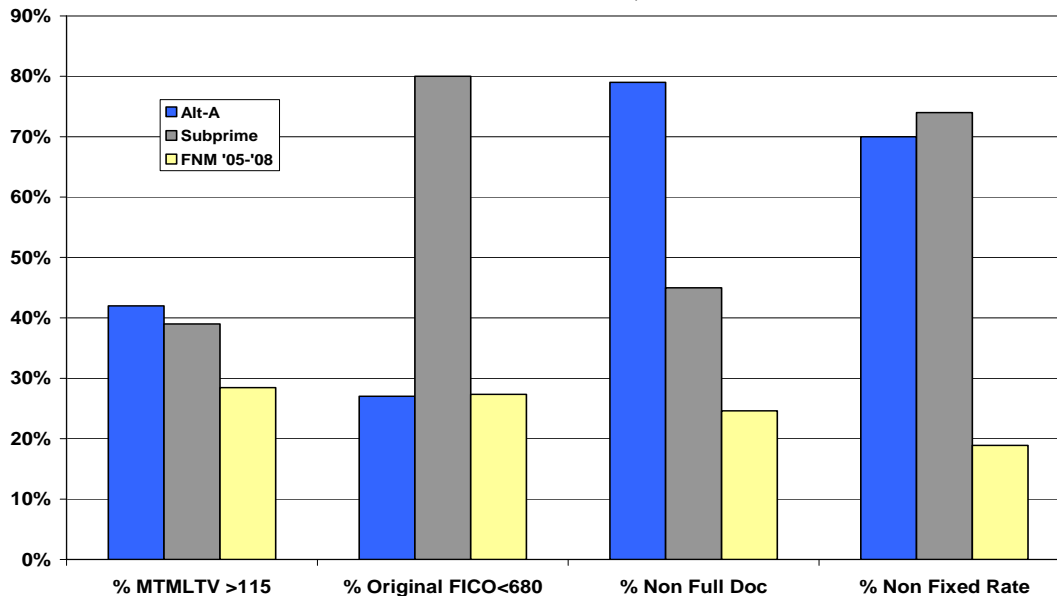
(1) Includes loans that are paid off

Unlike MTMLTV, the performance of modified loans is strongly related to the size of the payment change. Other factors, such as the number of months of delinquency at the time of modification are also strongly related to modification performance.

Comparison of Fannie Mae Book of Business to Private Label Securities

Fannie Mae mortgages differ from those in PLS – we have fewer underwater borrowers, a lower percentage of borrowers with FICO <680,³ a lower percentage of loans that are not fully documented, and a lower percentage of non-fixed rate mortgages. The chart below compares PLS to Fannie Mae’s 2005-2008 book of business (which accounted for 71% of our seriously delinquent loans as of year end 2011).

**PLS Subprime and PLS Alt-A versus Fannie Mae:
Selected Risk Characteristics
as of December 31, 2011**



Source: Loan Performance and Fannie Mae (based on UPB)
Government loans (approximately 0.9% percent of the total population) were excluded from the Fannie Mae Single Family 2005-2008 population.

Additional differentiating characteristics are set forth below.

	PLS Alt-A	PLS Subprime	Fannie Mae 2005-2008
Avg LTV	75%	80%	75%
Avg CLTV	80%	87%	78%
% LTV>80	8%	35%	25%
Avg Original FICO	712	631	714
Avg Original FICO for >80 LTV	702	624	700
Neg Am %	34%	0%	0.5%

Source: Loan Performance and Fannie Mae (based on UPB)
Data as of December 31, 2011
Government loans (approximately 0.9% percent of the total population) were excluded from the Fannie Mae Single Family 2005-2008 population.

³ When PLS Alt-A and PLS Subprime are combined.

The difference in characteristics and timing of the modifications between Fannie Mae mortgages and PLS has contributed to better performance of Fannie Mae modifications.

Re-Default Rates for Portfolio Loans and Loans Serviced for Others (60 or More Days Delinquent)*				
Investor Loan Type	3 Months After Modification	6 Months After Modification	9 Months After Modification	12 Months After Modification
Fannie Mae	11.7%	18.8%	24.1%	27.5%
Freddie Mac	11.3%	18.1%	23.2%	26.8%
Government-Guaranteed	17.2%	34.6%	44.2%	49.2%
Private	23.5%	34.5%	42.0%	46.7%
Portfolio Loans	7.9%	15.2%	20.6%	24.6%
Overall	15.7%	26.0%	32.7%	37.0%

*Data include all modifications made since January 1, 2008, that have aged the indicated number of months.

Source: OCC Mortgage Metrics Report Q4 2011

Principal Forgiveness Pilot Experiments

In 2010 and 2011, Fannie Mae conducted two experiments to test the effectiveness of adding principal forgiveness to modifications completed under the government’s HAMP program.

The first experiment tested the impact of the offer of principal forgiveness on the take-up rate of modification solicitations. One group of borrowers (the control group) was offered standard HAMP modifications. The other groups were offered modifications that would include principal forgiveness. The response rates for both populations were very small. Including the potential for principal forgiveness in the solicitation process did not create a statistically significant improvement in completion rates or in the intermediate milestones in the HAMP modification process.

The second experiment focused on re-default rates. One group of randomly selected borrowers received HAMP modifications that included principal forgiveness. Eight months after the modification, the percentage of borrowers who are current on their modified loan in the control group and principal forgiveness group remains virtually identical, 83% in the principal forgiveness group vs. 82% in the control group.

The details of our pilot experiments are included in Appendix B.

The Financial Impact of HAMP Principal Forgiveness on Fannie Mae Loans

Treasury recently announced an increase in the incentives under HAMP PRA and for the first time offered those incentives to the GSEs if they were to participate in the program. The program was also recently extended to December 31, 2013, for the receipt from a borrower of a complete set of HAMP documentation requirements. Based on the borrower's documentation and servicer's evaluation for HAMP, borrowers may be entered into permanent HAMP modifications until September 30, 2014.

We analyzed the NPV benefit of the increased investor incentives over the standard HAMP modification and found that, based on the HAMP NPV model, these incentives would create an estimated average NPV benefit of \$7,500 per loan.⁴ Under the HAMP NPV model, the NPV of a particular modification varies with the features of the loan and the characteristics of the borrower. The \$7,500 average impact is based on loan-level data from Fannie Mae loans submitted through the HAMP process during seven months of 2011 and based on loans which were NPV positive.

The table below shows these results by MTMLTV and presence of MI, with Treasury incentives included and excluded. We also show the impact of forgiving principal down to a floor of 115% MTMLTV and a floor of 105% MTMLTV. As expected, loans with MI have lower NPVs because much of the benefit of the modification (with or without principal forgiveness) accrues to the mortgage insurer, while the cost of the concession is borne by the investor. In addition, by comparing the results with and without the incentive, it is clear that the majority of the NPV benefit can be attributed to the presence of the increased investor incentive. Without the increased incentive, the NPV benefit is considerably reduced except for the highest MTMLTV buckets.⁵

⁴ In the analysis, we assumed that Fannie Mae would not receive any incentives other than the Treasury principal reduction investor incentives (i.e., Fannie Mae would continue to pay the HAMP borrower and servicer incentives).

⁵ An additional way to look at the NPV benefit of the increased investor incentive would be to consider only offering HAMP PRA to those borrowers who are >115% MTMLTV and have a higher NPV benefit than the NPV benefit of standard HAMP (as opposed to offering it to all >115% HAMP-eligible positive NPV borrowers). The difference is not material since standard HAMP had a higher positive NPV less than 15% of the time. The average NPV benefit would be \$7,400 if principal were forgiven down to a floor of 115% and \$9,500 if the floor was 105%. The average NPV benefit using this method is slightly lower than if HAMP PRA is offered to all eligible borrowers, because it adds loans that would not be eligible for a modification under HAMP PRA which are marginally NPV positive under standard HAMP, thereby bringing down the average.

NPV of HAMP PRA Modification Relative to Standard HAMP Modification

MTMLTV After Capitalization	Down to Possible 115% MTMLTV		Down to Possible 105% MTMLTV	
	No Incentive	PRA Incentive	No Incentive	PRA Incentive
115% to 125%	\$ 368	\$ 1,386	\$ 199	\$ 4,160
125% to 135%	\$ 627	\$ 3,510	\$ 585	\$ 6,377
135% to 145%	\$ 292	\$ 4,937	\$ 353	\$ 7,783
145% to 155%	\$ 771	\$ 6,448	\$ 1,008	\$ 9,112
155% to 165%	\$ 998	\$ 7,753	\$ 932	\$ 10,072
165% to 175%	\$ 1,427	\$ 8,491	\$ 1,404	\$ 10,452
175% to 185%	\$ 3,129	\$ 9,995	\$ 3,122	\$ 11,820
185% to 195%	\$ 3,743	\$ 11,233	\$ 3,634	\$ 12,931
>= 195%	\$ 8,873	\$ 16,234	\$ 8,845	\$ 17,273
AVERAGE	\$ 2,503	\$ 7,505	\$ 2,519	\$ 9,751

MI Status	Down to Possible 115% MTMLTV		Down to Possible 105% MTMLTV	
	No Incentive	PRA Incentive	No Incentive	PRA Incentive
Has MI	\$ 233	\$ 2,880	\$ 540	\$ 3,921
Does not have MI	\$ 2,509	\$ 8,385	\$ 2,310	\$ 10,821
AVERAGE	\$ 2,503	\$ 7,505	\$ 2,519	\$ 9,751

If we were to assume that Fannie Mae might complete 240,000 modifications over the remaining life of the program and that approximately 50% of those modifications might include principal forgiveness (>115% MTMLTV eligible population), then applying the \$7,500 NPV improvement per modification, we estimate the NPV benefit to be around \$900 million.⁶

The HAMP NPV model does not distinguish between Fannie Mae loans and other loans. Yet, as previously described, the data illustrates significant differences in loan performance and modified loan performance of Fannie Mae loans. Fannie Mae builds proprietary internal models of loan performance based on data about the performance of our modifications. In estimating performance, these models also consider additional factors beyond those considered in the HAMP NPV model. Fannie Mae's proprietary models of modified loan performance show less of a relationship between the MTMLTV of a loan and modification performance. As a result, based on our internal models, the difference in the NPV of HAMP principal forgiveness modifications and standard HAMP modifications is more modest than indicated by the HAMP NPV model.

Our analysis of principal forgiveness as part of a loan modification program focuses on the economics of forgiveness and its impact on borrower performance. We also considered the accounting cost of doing a modification with principal forgiveness. We compared the accounting impact of modifications with and without forgiveness. Currently, there is not a major difference between the immediate accounting impact of a standard HAMP modification and a HAMP PRA modification. A key difference between the two types of modifications, however, is that the standard HAMP modification includes the possibility of collecting forbearance amounts at a future date,

⁶ If we were to assume that Fannie Mae might complete 240,000 modifications over the remaining life of the program, and that approximately 50% of those modifications might include principal forgiveness (>115% MTMLTV population), and that we were to forgive principal down to a floor of 105% MTMLTV (see table above), then applying the \$9,750 NPV improvement per modification, we estimate the NPV benefit to be around \$1.2B.

but no principal recovery is possible when it is forgiven. At the present time, Fannie Mae accounting estimates reflect a low probability of collecting forbearance amounts and any collections are assumed to happen after several years. As our portfolio of modified loans ages, we learn more about borrowers' performance and regularly update our accounting estimates. In the future, the accounting impact of standard HAMP modifications and HAMP PRA modifications may diverge as the likelihood of forbearance recovery improves (based on, among other factors, improvement in unemployment and home prices).

While not directly related to HAMP, we also reviewed the cost of principal forgiveness for all borrowers who are current on their payments and have MTMLTV >115%. These are the borrowers who could potentially qualify for principal forgiveness under HAMP if they became delinquent and met the other qualifications of the program. If we were to forgive principal on all current and performing borrowers down to 115% MTMLTV, we would forgive almost \$40 billion of principal. If we were to forgive these borrowers' principal down to 100% MTMLTV, we would forgive almost \$73 billion of principal.

Other Implications of Fannie Mae Participating in HAMP PRA

Moral Hazard

While our experiments indicate no increase in take-up rate or performance on modifications with principal forgiveness, they were conducted without any publicity or broad-based customer outreach. Our experience and the limited publicly available research indicate that the publicity surrounding new programs has often led to increases in borrower awareness and interest. The increased awareness from publicity surrounding the program can have two impacts: (1) borrowers may become delinquent in order to qualify for the program; and (2) delinquent borrowers may be more willing to participate in the modification process.

There is some evidence that borrowers become delinquent to qualify for new modification programs. Christopher J. Mayer et.al. (National Bureau of Economic Research, published May 2011) looked at borrower behavior around the announcement of a new Countrywide loan modification program for delinquent borrowers. This study found a 13% increase in the relative rate of eligible borrowers becoming delinquent compared to the delinquency rate among other non-eligible borrowers. Some of this increase is due to borrowers deciding to become delinquent in order to participate in the modification program. And perhaps some of this increase might be due to borrowers' interactions with servicer representatives. In our experience, servicer representatives sometimes indirectly or directly encourage borrowers to become delinquent in order to qualify for a modification or other loan workout programs.

While we cannot predict the number of borrowers who will become delinquent in order to participate in the program, we can dimension its possible impacts. At a high end estimate of >115% MTMLTV HAMP modifications, we estimate that the HAMP PRA program could attract 120,000 Fannie Mae borrowers and have a total benefit of \$900 million. If around 45,000 – 56,000 Fannie Mae borrowers stop paying to try to qualify for the principal reduction modification, this would completely negate any NPV benefit of a principal forgiveness program to Fannie Mae. This represents 4 - 5% of our 1.1 million current and performing underwater loans.⁷

The high end estimate assumes all Fannie Mae modifications over 115% MTMLTV might qualify for HAMP PRA. However, based on our 2011 experience, only approximately 50% of our >115% MTMLTV modifications were completed under HAMP. If the HAMP PRA program were instead applied to 60,000 borrowers, then the NPV benefit of the program would be negated if only 23,000 – 28,000 Fannie Mae borrowers intentionally go delinquent to qualify for the program.⁸

It is also possible that we could experience an increase in borrower take-up rates for HAMP PRA modifications compared to today's take-up rates for modifications without principal forgiveness. However, based on our past experience, the potential economic benefit from this would be modest. If there is a 10% increase in the number of HAMP PRA qualified borrowers who complete the modification process, we estimate that the added benefit would be approximately \$95 million.

Operational Costs Associated with Implementing HAMP PRA

Fannie Mae performed an in-depth operational analysis to assess the cost of implementing the complexities of HAMP PRA into our end-to-end processes including technology systems (from servicer interfaces to cash management and accounting systems). We feel strongly that a program of this complexity must be operated using tightly controlled, automated and fully tested processes. We determined that the effort would take an estimated 22-24 months at an estimated cost of \$48-\$66 million. In addition, there would be a significant opportunity cost to planned Fannie Mae high

⁷ This analysis assumes that all the borrowers who intentionally become delinquent to receive principal forgiveness under HAMP PRA would have otherwise performed on their loan until payoff and would qualify for the HAMP PRA program. In fact, some of these borrowers may face financial hardships in the future.

⁸ If we were to reduce all HAMP PRA borrowers to a possible 105% MTMLTV, the NPV benefit of \$1.2 billion would be negated if 43,000 – 56,000 (4 - 5%) Fannie Mae borrowers stop paying to try to qualify for the principal reduction program (assuming 120,000 HAMP PRA modifications) or 22,000 - 28,000 (2 – 3%) Fannie Mae borrowers stop paying to try to qualify (assuming 60,000 HAMP PRA modifications). Although the NPV benefit of reducing the MTMLTV to 105% increases from \$7,500 to \$9,750, the average cost per modification for Fannie Mae also increases significantly. Therefore, the percentage of strategic modifications necessary to negate the NPV benefit shows little variation.

priority initiatives, including, among other things, the strategic plan outlined by FHFA, including the planning for a single securitization platform.

An overview of our operational assessment is included in Appendix C.

Fannie Mae’s Short Sale Program is a Form of Principal Forgiveness

While modifications are designed to make the payment affordable while the borrower is in the home, we also know that underwater borrowers may need to relocate for personal reasons. For borrowers in these conditions, Fannie Mae offers principal forgiveness through our short-sale approval program. With a short sale, the borrower sells their home, and Fannie Mae and the borrower reach an agreement to terminate the borrower’s mortgage obligation without full payment of outstanding principal. Thus, short sales are principal forgiveness. The table below shows the short-sales approved by Fannie Mae in 2011 as a function of the delinquency status of the borrower:

	Months Delinquent at Final Activity Date				
	Current	1-3 Months	4-6 months	7+ Months	All
2011 Short Sales	1,696	6,399	13,843	47,621	69,615

*Current reflects borrowers in imminent default and other individual circumstances.

*56 loans had a missing delinquency status.

Principal forgiveness through short sales has a number of advantages as a form of principal forgiveness versus including forgiveness in the modification:

- The forgiveness occurs when the homeowner is selling their home as a result of a hardship, is unable to afford the modification payment and is constrained by the LTV of their mortgage.
- The amount forgiven is directly tied to the sale price of the home – the borrower does not gain from a future home price increase or return to underwater status from subsequent home price declines.
- The actual value of the property – and the amount of forgiveness - is determined by a competitive market offer and the borrower’s financial condition.

Reconciling Fannie Mae’s Analysis to that of Other Analysts

Many of the publicly available analyses which advocate principal forgiveness are based on limited available data or on loans that differ in key ways from loans guaranteed by Fannie Mae. For example, according to public reports, many of the existing forgiveness programs have focused on Option-ARM products and the increases in loan balances realized during periods of reduced payments. Overall, we find that after reviewing publicly available resources, one can draw the following conclusions:

- There is insufficient evidence to support the view that a program of principal forgiveness by Fannie Mae relative to other forms of loan modification would be a more effective tool in improving loan performance, ensuring better home retention, or fulfilling other public policy objectives (such as stabilizing house prices).
- Publicly available information on the performance of alternative modification structures for the non-subprime conventional market is limited. Therefore, one should exercise caution in rejecting or accepting principal forgiveness as a positive approach and/or an effective public policy option.

An additional issue with much of the published analyses is the combination of loans with principal forgiveness and principal forbearance in the reporting of the performance of loans with principal forgiveness. This happens because the commercially available data does not distinguish between principal forgiveness and forbearance.

The analyses often report a sizable difference in post-modification performance of loans with forgiveness and loans with modifications that include only rate reductions and term extensions. From this assessment, the authors conclude that principal forgiveness is a more effective form of modification than rate reduction and term extension.

In fact, Fannie Mae's data shows that modifications with principal forbearance also perform better than loans with only rate reductions and term extension. The performance difference is of comparable magnitude to the performance difference between forgiveness/forbearance modifications and rate/term modifications shown in analysts' reports.

The table below shows the percentage of loans that are 2 or more months delinquent one year after modification for loans modified by Fannie Mae during 2009 and the first half of 2010.⁹ The results for loans with forbearance and with only rate reduction/term extension are reported separately and are categorized by the delinquency at the time of modification and the payment change from the modification.

⁹ The 2009-6/2010 time period is the period covered in some of the analysts' reports.

Re-default rate 12 months after modification

Mod type by Payment Reduction		Months Delinquent at Modification			
		<=2 DQ	3-6 DQ	7-12 DQ	>12 DQ
Rate/Term Modifications with Forbearance (A)	>40.01%	4%	7%	11%	20%
	20.01 - 40%	6%	13%	24%	30%
	0.01 - 20%	8%			
Rate/Term Modifications without Forbearance (B)	>40.01%	8%	12%	17%	27%
	20.01 - 40%	13%	17%	26%	36%
	0.01 - 20%	20%	27%	36%	47%
Difference between (A) and (B)	>40.01%	-4%	-5%	-6%	-7%
	20.01 - 40%	-7%	-5%	-3%	-6%
	0.01 - 20%	-12%			

Source: Fannie Mae

After controlling for payment reduction and delinquency at modification, modifications with forbearance outperform those solely with rate reductions/term extensions. One might conclude from this that forbearance is more effective in the modification process than interest rate reduction or term extension. However, borrowers do not randomly receive principal forbearance modifications. Rather, for a given payment reduction, the note rate in the borrower's original loan is the driver of the terms of the modification. Consider two borrowers who each receive a 30% payment reduction in their modification. Under the HAMP waterfall, the borrower would first receive a rate reduction to 2%, then a term extension, then forbearance. Borrowers with a higher initial note rate will receive more of a payment reduction from the change to a 2% note rate. Therefore, they are less likely to need forbearance to achieve this payment reduction than a borrower with a lower pre-modification note rate. In fact, during the period in which most delinquent loans were originated (2005-2008), mortgage rates were relatively stable. The biggest source of rate differential among borrowers was the initial credit quality of the original loan. Thus, lower credit quality borrowers are more likely to have rate/term modifications without forbearance. It is not surprising that these borrowers continue to underperform loans with higher initial credit quality.

Conclusion

Our analysis of principal forgiveness in loan modifications has not revealed any indicators that principal forgiveness will lead to meaningful improvements in the performance of loans modified by Fannie Mae.

- We have not found a strong relationship between the MTMLTV of a modified loan and its post-modification performance.
- Limited controlled experiments have not shown an impact from principal forgiveness.

- Differences between Fannie Mae loans and other loan products mean that forgiveness might be a more effective tool in other circumstances, but there is insufficient publicly available information to reach any strong conclusions.

Treasury's willingness to pay the GSEs financial incentives to do modifications with principal forgiveness makes it an economically attractive option for Fannie Mae on a loan-by-loan basis. However, we are concerned that:

- It might encourage borrowers who are current on their mortgage to become delinquent to take advantage of the program.
- The operational process of implementing the program might delay other programs that are either required by law or create the opportunity to provide greater benefits to borrowers in distress.

We recognize that a widely publicized principal forgiveness program with GSE participation might lead to broader borrower willingness to participate in the modification process, which would benefit the borrower and Fannie Mae, but the speculative potential for an improved take-up rate does not address our primary concerns with any such program.

Appendix A: Multivariate Analysis of Modification Performance

This discussion shows that modification performance is not directly related to the MTMLTV of loans modified by Fannie Mae. If it were strongly related to modification performance, this would provide some evidence that principal forgiveness in modifications will improve performance.

To further test for a relationship between LTV at the time of modification and performance, we looked at a number of multivariate analyses to try to isolate the impact of MTMLTV after controlling for other drivers of default. Our results indicate a modest impact of the MTMLTV of a modified loan on loan performance after controlling for other variables.

At first glance, this result may seem surprising. In most available analyses of the performance of newly originated loans, the LTV of the loan is one of the most important predictors of loan performance. However, it is important to recognize that borrowers with modified loans have agreed to go through the modification process (including trial periods). Through this process, they have revealed their desire to continue to make their mortgage payments despite the MTMLTV of their loans.

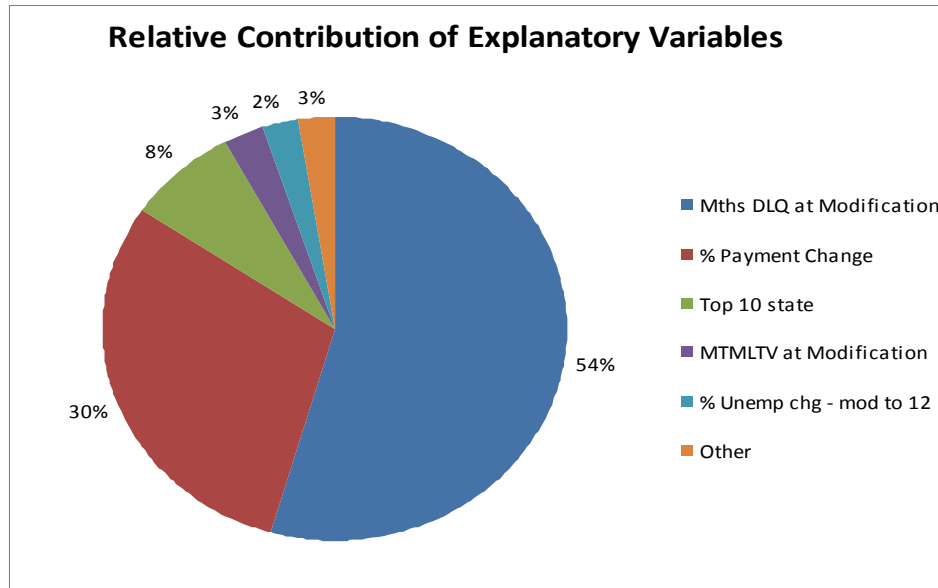
Because of the correlations among many of the variables commonly considered to be predictors of loan performance, it is difficult to construct a multivariate analysis that eliminates the correlations across the independent variables while capturing the major drivers of performance. Among the specifications that we examined, the variables below provide the best overall predictive capability while isolating the impact of MTMLTV on performance. There is a possible shortfall in this analysis from not including potentially relevant variables such as the loan's original LTV or historical home price changes. When relevant variables are excluded, coefficients of the included variables are statistically inconsistent.

The model predicts the probability that a loan will become two or more months delinquent one year after modification. The prediction is a function of:

- MTMLTV at time of modification
- Number of months the original loan was delinquent at the time of modification
- Percent of payment change from the modification
- Geography of the loan. Each of the 10 states with the most Fannie Mae modifications as separate dummy variables
- Quarter in which the loan was modified
- Local market home price change during the 12 months after the modification
- State level unemployment change during the 12 months after the modification
- Whether or not the original loan was a full documentation loan
- Number of units in the property

Overall, we believe the model is reasonably predictive of post-modification performance.

The contribution of each variable to the overall fit is summarized below. The pie chart shows the percentage of the dependent variables' variability that is explained by each of the independent variables.



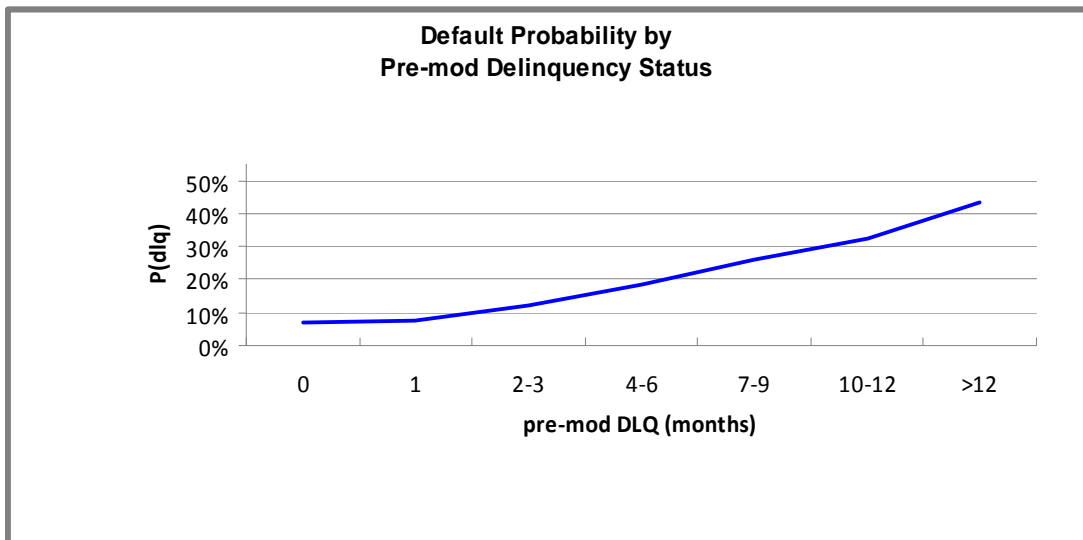
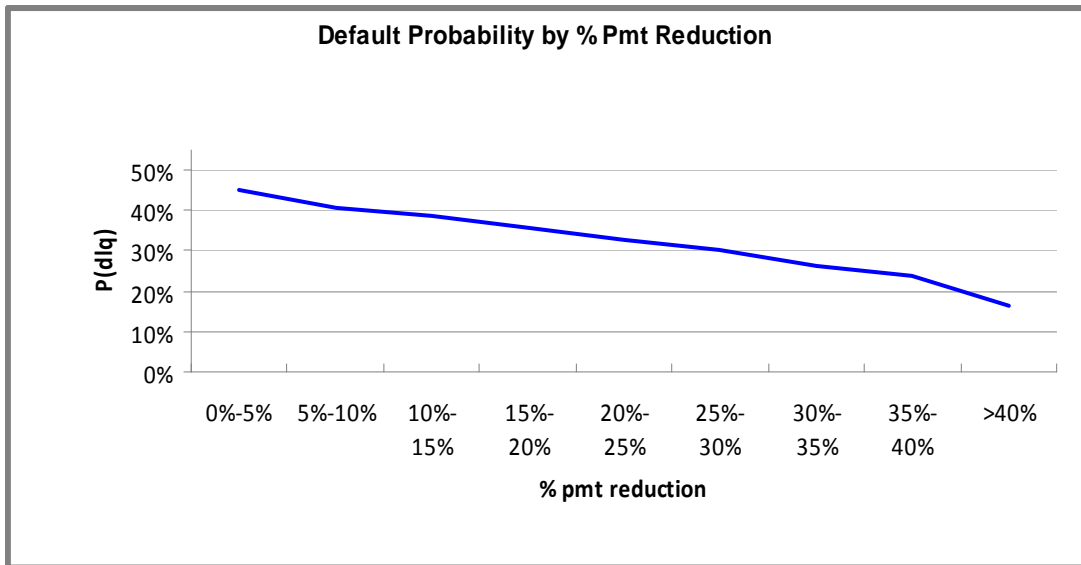
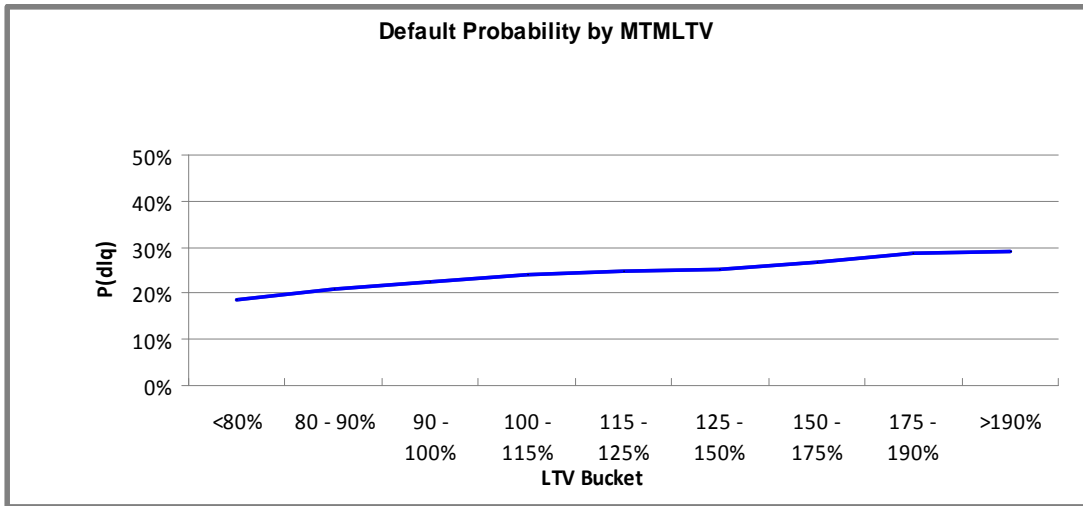
Source: Fannie Mae

The key variables in predicting post-modification performance are how delinquent the loan was prior to modification and the size of the payment change from the modification. MTMLTV only explains 3% of the overall variability in performance.

Another way to illustrate the relative importance of the different variables is to show how the probability of delinquency for a given loan changes as each of the variables in the equation change.

The graphs below show the change in predicted default variable for a 7-months delinquent full documentation loan in Florida with a 110% pre-modification MTMLTV. The loan is modified in Q1 of 2010 with a 36% payment reduction. In the 12 months after the modification, local house prices drop 5% and unemployment decreases by 0.6%.

The graphs illustrate the relatively modest role of MTMLTV as a predictor of post-modification performance. The predicted default probability of underwater loans varies by about 9 percentage points as MTMLTV changes. In contrast, for different payment reductions the probabilities vary by 30 percentage points and for different delinquency stages it varies by 35 percentage points.



Appendix B: Fannie Mae Experiments on the Impact of Principal Forgiveness

To test how effective principal forgiveness is in improving Fannie Mae's HAMP take-up rates and reducing HAMP re-defaults, Fannie Mae designed and conducted two principal forgiveness experiments with a top five servicer. The first experiment tested modification take-up rates and the second tested re-default rates.

Both experiments were randomized studies, i.e., eligible borrowers were randomly assigned to a control group or a principal forgiveness group.

First Principal Forgiveness Experiment

Purpose

The first principal forgiveness experiment tested the effect of principal forgiveness on Fannie Mae's HAMP take-up rates. The experiment was designed at the end of 2009 and carried out in March-June 2010, before the introduction of HAMP PRA. (While originally designed to also test post-modification performance, too few loans in the test groups completed a modification to test re-default rates.)

Experiment Design

The experiment had the following features:

- Two trial groups were offered the potential to have principal forgiveness as a feature in their HAMP modification
- A control group followed the regular HAMP process without forgiveness
- The eligible population of borrowers were randomly assigned between the control and principal forgiveness groups

The borrowers in the control group were solicited for a standard HAMP modification that achieved 31% debt-to-income ratio (DTI) using the standard HAMP waterfall: interest rate reduction, followed by term extension and forbearance, but not principal forgiveness. In contrast, the borrowers in the principal forgiveness group were solicited for a non-standard HAMP modification that achieved the same 31% DTI by using principal forgiveness as the first step in the modification waterfall.

The rule for calculating principal forgiveness was designed by Fannie Mae to optimize the net present value (NPV) of the modification. The amount of principal forgiveness received by borrowers in the principal forgiveness group varied between 4% and 30% of the loan balance depending on pre-modification MTMLTV and DTI. The rules for determining the amount of forgiveness were:

- forgive at least 4% of the principal balance

- forgive principal down to 115% MTMLTV or 31% DTI, whichever comes first
- but no more than 30% of the principal balance

The modification waterfall prescribed that the principal forgiveness be followed by the regular HAMP waterfall of interest rate reduction, term extension, and forbearance if the forgiveness was not enough to achieve 31% DTI.

Each month from March to June 2010, the Servicer selected each loan from the HAMP-eligible 60+ days delinquent population with pre-modification MTMLTV above 120% for the pilot.

- The borrowers were randomly divided into three groups: two principal forgiveness groups with a 25% weight each and a control group with a 50% weight.
- The MTMLTV was calculated using Fannie Mae’s automated valuation model (AVM). The MTMLTV cutoff of 120% was set above the 115% level specified by the principal forgiveness rule to ensure that each loan in the pilot can get at least several percentage points in forgiveness.
- In total, 1,773 loans were selected.

As the table below demonstrates, the borrowers in the three groups had very similar characteristics.

Borrower and Loan Characteristics of Borrowers in Take-Up Rate Experiment

	Defined Principal Forgiveness Amount (4-30%)	Principal Forgiveness Amount TBD	Control Group (No Principal Forgiveness)
Loan Count	448	453	872
% 2-3 months delinquent at solicitation	70.8%	70.6%	73.9%
Fixed Rate at Origination	86.6%	81.8%	82.5%
Origination FICO (650 - 750)	62.3%	66.0%	61.5%
FICO at Solicitation (550 - 700)	54.7%	55.0%	52.5%
MTMLTV at Solicitation (>150%)	31.7%	29.6%	30.7%
Origination UPB (150K - 300K)	62.9%	53.9%	60.6%
Interest Rate at Solicitation (5.5% - 6.5%)	68.5%	70.9%	68.0%
Monthly Payment at Solicitation (\$800 - \$2,000)	75.9%	66.7%	72.9%
Geography (Top 3 States)	58.7%	63.8%	64.8%
FL	28.1%	32.7%	32.2%
CA	16.3%	16.3%	19.0%
AZ	14.3%	14.8%	13.5%

The control group, labeled ‘No Principal Forgiveness in Solicitation’, received the standard HAMP solicitation letter inviting the borrower to apply for HAMP. The standard letter did not contain any mention of principal forgiveness.

The first principal forgiveness group, ‘Principal Forgiveness - Amount TBD’, received a solicitation letter that in addition to the information included in the standard HAMP letter stated that the borrower might receive principal forgiveness as a part of the HAMP modification but did not provide any specifics on the amount of forgiveness.

The second principal forgiveness group, ‘Principal Forgiveness - Defined Range’, received a solicitation letter that provided a loan-specific range of potential forgiveness. The low end of the range was set at 4% of the balance (translated into dollar terms). The upper end of the range was calculated using the principal forgiveness rule described above.

Each borrower that received a Principal Forgiveness - Amount TBD or Principal Forgiveness - Defined Range solicitation letter offering principal forgiveness was flagged in the Servicer’s system to alert loss mitigation representatives in their future interactions with the borrower. The system informed the Servicer representatives that the borrower was part of the principal forgiveness pilot and provided a link to the solicitation letter received by the borrower. The representatives also received training to answer potential questions regarding principal forgiveness.

Experiment Results

We tracked the borrowers’ performance at each stage of the HAMP modification process.

While we observed little difference across the groups, the most striking result of this experiment is the low pull-through rate of all groups. Whatever road blocks exist to the successful completion of HAMP modifications, the inclusion of principal forgiveness as part of the modification was not a sufficient additional incentive to overcome those impediments.

Pull through rates from solicitation to modification completion of the first principal forgiveness experiment.¹⁰

	No Principal Forgiveness in Solicitation	Principal Forgiveness - Defined Range	Principal Forgiveness - Amount TBD
# Total Pilot Participants	872	448	453
% Respond to Solicitation Letter	73.7%	70.5%	74.8%
% Passed Initial HAMP Evaluation	19.3%	18.8%	19.2%
% Started Trial Period	6.5%	3.6%	6.2%
% Finalized HAMP Modification	5.0%	2.7%	5.3%
# HAMP Modifications	44	12	24

Source: Fannie Mae

¹⁰ Results for solicitation letter response rate (borrower right party contact) and borrowers that passed the pre-qualification for HAMP were provided by the servicer responsible for pilot execution.

Conclusion

The evidence from the pilot suggests that introducing principal forgiveness in Fannie Mae's HAMP modifications will not improve pull-through rates.

One explanation for the lack of a difference between the Principal Forgiveness and No Principal Forgiveness groups is that the overall modification process is challenging enough that changes in the modification offer are not sufficient to alter performance. It is also possible that borrowers do not pay much attention to the language of the HAMP solicitation letter and, unless the principal forgiveness feature is heavily advertised, borrowers might not even be aware that principal forgiveness is offered.

Second Principal Forgiveness Experiment

Purpose

The second principal forgiveness experiment tested whether borrowers whose modification included principal forgiveness outperform similar borrowers who received the standard HAMP modification. The second pilot was carried out in January 2011–March 2011.

Experiment Design

The second principal forgiveness experiment had the same key features as the first experiment.

The pilot was designed to accumulate 500 completed modifications in each of the groups for a total of 1,000. For operational reasons, the pilot was stopped by the Servicer before reaching this goal. The total number of completed modifications that met all of the conditions required for inclusion in the pilot is 352. Although less than desired, this number of modifications still allows us to draw conclusions on the impact of principal forgiveness on re-default rates.

Between January 2011 and March 2011, all borrowers who were ready to convert from a HAMP trial to a permanent modification, i.e., borrowers that made the three required trial payments and submitted all required financial documentation, and had a MTMLTV ratio above 120% were included in the pilot.

The pilot divided eligible borrowers randomly between the Principal Forgiveness and No Principal Forgiveness groups. The table below shows the characteristics of the borrowers in the two groups.

Borrower and Loan Characteristics of Borrowers in Re-Default Experiment

	Control Group (No Principal Forgiveness)	Principal Forgiveness
Loan Count	174	178
% 5+ months delinquent at solicitation	55.2%	48.6%
Fixed Rate at Origination	80.5%	89.8%
MTMLTV at Solicitation (>150%)	27.6%	29.4%
Interest Rate at Solicitation (5.5% - 6.5%)	55.2%	67.8%
Monthly Payment at Solicitation (\$800 - \$2,000)	66.7%	80.8%
% full doc (pre mod)	82.2%	86.4%
Geography (Top 3 States)		
FL	56.3%	46.3%
CA	27.6%	24.3%
AZ	21.8%	16.4%
	6.9%	5.6%

Completed loan modifications were identified in the Principal Forgiveness test group based on data provided by the servicer responsible for pilot execution.

The No Principal Forgiveness group received a standard permanent HAMP modification letter that did not include principal forgiveness.

The Principal Forgiveness group received a standard HAMP letter with an insert that explained how principal forgiveness worked and specified the amount to be forgiven. The whole amount of principal forgiveness was applied immediately at modification and not vested over 3 years as in HAMP PRA. The other steps of the HAMP waterfall were also used if they were necessary to meet the 31% target DTI. The insert also instructed borrowers who did not want the principal forgiveness to call the Servicer. To our knowledge none of the borrowers opted out.

Experiment Results

The loans in the Principal Forgiveness and No Principal Forgiveness groups each received a monthly payment equal to 31% of the borrower's income. However, the No Principal Forgiveness group achieved the payment reduction mostly by reducing the interest rate from 6.4% to 2.7% and the Principal Forgiveness group achieved the payment reduction mostly by forgiving 21% of principal (\$45,232 on average).

To achieve the target DTI of 31%, the average post modification MTMLTV for borrowers who received principal forgiveness was 137%. On average, this MTMLTV may not appear to provide a sufficient value-based incentive to perform on the modified loan. For that reason, the table below breaks out the group that received principal forgiveness by post-modification MTMLTV buckets. While the population sizes in some of these buckets are small, it is significant that there is no consistent difference in performance across MTMLTV buckets.

In addition, despite the differences in post-modification MTMLTV, the percent of loans that are still current is virtually identical between the group that received principal forgiveness and the group that did not. While it is still early in the post-modification period, it appears that negative equity considerations do not affect performance of HAMP borrowers everything else equal, over the first 8 months (the time period for which we have data on all loans in the experiment). It is possible that we will see some separation in re-default rates if home prices rebound strongly. In this case, if borrowers from the Principal Forgiveness group have a life event and have to move, they will be able to pay off the balance with property sales proceeds, while the borrowers in the No Principal Forgiveness group will still be underwater and will have to rely on a short sale or some other loss mitigation alternative.

The small sample size of this experiment and the short history of post-experiment results somewhat limits the value of the results.¹¹ However, the similarity of the results makes it likely that there is no meaningful difference between the two groups. For example, we performed a statistical test and determined that there is only a 5% chance that at eight months, loans with principal forgiveness would outperform loans without principal forgiveness by 8 percentage points or more.

Percent of current loans by months since modification

Months Since Modification	No Principal Forgiveness	All Principal Forgiveness Loans	Principal Forgiveness - LTV=115	Principal Forgiveness - 115<LTV<=125	Principal Forgiveness - LTV>125	Principal Forgiveness - LTV missing in servicer data
1	98%	94%	94%	96%	97%	82%
2	98%	91%	90%	88%	94%	88%
3	94%	89%	90%	81%	92%	82%
4	93%	89%	90%	84%	91%	82%
5	89%	84%	84%	84%	85%	82%
6	88%	84%	82%	84%	88%	81%
7	82%	85%	85%	92%	84%	81%
8	82%	83%	84%	91%	80%	81%
Size	174	178	67	26	68	17

Data as of December 31, 2011

The experiment indicates that reducing the level of negative equity has little impact on the short-term performance of loans modified by Fannie Mae through the HAMP process.

Conclusion

The modification performance data and the two experiments conducted by Fannie Mae provide evidence that including principal forgiveness in the HAMP modification of Fannie Mae loans would not meaningfully improve the performance of these loans. While the number of loans in each experiment is small, each is large enough to identify sizable differences if they had existed.

¹¹ Results are based on data provided by servicer responsible for pilot execution.

On the other hand, there is no evidence that the performance or the economics of loan modifications will significantly worsen if forgiveness is included. There is just not evidence that it will have the meaningful impact on the performance of borrowers with Fannie Mae loans that some have predicted.

As part of a broader loan modification initiative or a more simplified program, principal forgiveness may create increased borrower awareness and result in higher take-up rates or improved post-modification performance.

Appendix C: Operational Assessment of Costs Associated with Implementing HAMP PRA

Fannie Mae performed an in-depth operational analysis to assess the cost of implementing HAMP PRA into our end-to-end processes including technology systems. Our assessment looked at the changes that would be necessary to implement HAMP PRA through the technology systems that support our Credit Loss Management (CLM), including the National Servicing Organization (NSO); our National Underwriting Center (NUC) and Real Estate Owned (REO); Master Servicing; Credit Enhancement; Mortgage Operations; and Finance; Loan Accounting; Capital Markets; Modeling and Analytics. We feel strongly that a program of this complexity and visibility that involves Fannie Mae, borrowers, Treasury, and our servicers must be operated using tightly controlled, automated, and fully tested processes.

Several components of the Treasury HAMP PRA program require complex accounting and operational challenges for Fannie Mae, particularly:

- *Principal forgiveness earned over a three-year vesting period based on the borrower's good standing.* The vesting period based on the borrower's good standing is challenging for a number of reasons including: (1) it introduces a new set of Loan Activity Reporting (LAR) for the servicer to inform Fannie Mae of the borrower's good standing; (2) Fannie Mae must establish processes to validate the new servicer reporting; (3) new servicer reporting introduces a new set of reporting exceptions, or rejects, that must be tracked and resolved; and (4) new data attributes associated with these processes must be made available to and consumed by multiple operations and accounting systems across the company.
- *Payment of incentives from Treasury to Fannie Mae and from Fannie Mae to borrowers over a three-year period.* These are entirely new processes for Fannie Mae. Implementing investor and borrower incentives will require Fannie Mae to: (1) establish new mechanisms to reconcile incentives per Treasury calculations; (2) establish new mechanisms to reconcile cash received from servicers (investor incentive); (3) establish new mechanisms for reducing loan unpaid principal balance (UPB) for borrower incentives; (4) establish a new standard draft process and related operational procedures/controls for collecting investor incentives from servicers; (5) modify existing feeds to the Remittance Shared Service (RSS) system for cash collection from servicers; (6) extend servicer reporting to collect data to support calculations required to establish Fannie Mae expectations for investor and borrower incentives; and (7) extend internal/external reporting on exceptions noted within the process. Data associated with the results of these operations must also be made available to the accounting and business teams via updates to multiple downstream feeds.
- *Inclusion of Fannie Mae standard modifications (Tier 2 loans) in the HAMP PRA program and performance of NPV tests for all HAMP loans (Tier 1 and Tier 2).*

This will require Fannie Mae to extend servicer reporting requirements to report NPV and trial data for purposes of establishing an expectation for incentive payments.

- IR2 reporting for all loans, Tier 1 and Tier 2, including related reconciliation processes.

The reconciliation of HAMP’s IR2 system of record to Servicer Investor Reporting (SIR)—the system used by Fannie Mae for Master Servicing—and related new servicer reporting at the loan level and for the new attributes associated with a principal reduction modification would be fully automated, but is expected to result in exceptions that require follow-up with servicers in the form of new reports, business processes and other direct contact.

Implementing Treasury’s HAMP PRA program would impact multiple technology components in the current and planned loss mitigation and loan accounting infrastructure, including major applications, supporting models, databases, and servicer interfaces. The levels of effort and cost estimates described below are reflective of the complexity introduced by the HAMP PRA program’s components and operational support requirements:

Impacted Systems	Estimated Time	Estimated Project Cost	Comments
Master Servicing	18 months	\$8 - \$9M	New incentive management capability; external portal supporting PRA reporting
Finance	15 months	\$20 - \$30M	Includes cost of changes to SFREO systems
Credit Loss Management	8 months	\$8 - \$10M	
Data Warehouses	8 months	\$1.5 - \$2M	
FNM End-to-End Integration Testing	4 months	\$10 - \$15M	Does not include 3 rd party integration testing
Servicers Integration Testing	4-6 months	TBD	Estimate based on experience with other large integration efforts with servicers
Total Estimate	22-24 months	\$48-\$66M	

In reviewing the above estimates, please note:

- Technology changes require coordination across multiple systems and teams which increases the complexity and timelines for testing and systems certifications.
- Timeline includes allowance for policy development and Fannie Mae standard technology governance processes: Systems Development Life Cycle (SDLC) processes, assessment of SOX-related controls, and Internal Audit Pre-Implementation Review.

- Projected costs are estimates based on previous development efforts of similar scope and complexity.
- These estimates do not include on-going costs required to support the program once system changes have been made and the program is implemented.
- Fannie Mae's program implementation would also be dependent upon Fannie Mae servicer implementation readiness. Not all Fannie Mae servicers are participating in Treasury's HAMP PRA program – implementing HAMP PRA for Fannie Mae non-HAMP participating servicers would involve a substantial level of effort not covered in this assessment.

In addition, there would be a significant opportunity cost to planned Fannie Mae high priority technology projects, including, among other things, the implementation of the strategic plan outlined by FHFA, including the planning for a single securitization platform. A principal reduction program that is substantially less complex than HAMP PRA could potentially be implemented faster and at lower cost.