

A Statistical Analysis of the Performance of HAMP

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Abstract

In February 2009, Home Affordable Modification Program (HAMP) was initiated by the Department of Treasury to modify the residential mortgages of distressed borrowers in order to prevent foreclosure and stabilize the housing market. By October 2011, HAMP has admitted 830,000 borrowers into permanent modifications. Despite criticism HAMP performs well with a consistently lower than industry benchmark re-default rate. Treasury attributed HAMP's performance to the significant reduction of monthly mortgage payments. By utilizing the HAMP public data, this paper attempts to explain HAMP's performance by examining the correlations of other mortgage attributes such as geographic location, income level, and loan to value ratio with the re-default rates of modified loans.

Key Words: loan modification, HAMP, equity sharing modification, re-default rate

1. Introduction

A residential mortgage is a loan secured by a residential property. When a borrower is delinquent for a few consecutive payments, the lender generally considers the borrower has defaulted on the underlying mortgage. There are many triggers of mortgage default. The first class of triggers by nature is involuntary. Life events, like becoming temporarily disabled, incurring unexpected medical expenses or loss of job, or simply the payment shock of an ARM after the initial teaser period could make the borrowers unable to continue mortgage payments and thus default. The second class is voluntary default or strategic default – the borrowers simply stop paying the mortgage and walk away from the properties even if they could afford their mortgage payments.

A lender has two options: foreclosure and loan modification to recover losses from a defaulted mortgage:

- Foreclosure is a legal procedure for a lender to repossess the underlying property. Once foreclosure is conducted, the lender usually can recover a portion of the unpaid balance of the mortgage by liquidating the property. Foreclosure is an expensive process. There are three major cost factors contributing

to the total loss associated with foreclosure. The first cost factor is the difference between mortgage unpaid balance and the current home price level. The drop of the house price usually triggers the default behavior at the first place. The second cost factor is the house value depreciation during the foreclosure process caused by lack of maintenance. The third cost factor is the legal expenses associated with foreclosure. In addition, a hidden cost factor is the depression of the value of the neighboring properties caused by the foreclosed property. This cost reduces the overall wealth of society, and may affect the lender directly because the lender may have interest in some of the surrounding property and thus reduces the overall wealth of the society.

- Loan modification is an alternative solution to foreclosure. Instead of repossessing the underlying property, a loan modification changes the original terms of a mortgage based on the agreement between the lender and the borrower in the hope that the borrower can work out with a reduced mortgage payment. Loan modification has long been used by the mortgage lenders to modify the original mortgage contracts in order to keep the borrowers from defaulting and foreclosure. Lenders are motivated by the expectation that the value of a performing loan with new terms is higher than the sale proceedings from a foreclosed property with a distressed value due to lack of maintenance.

An interesting development since 2009 in the mortgage finance industry is the involvement of the government in loan modifications, which brought considerable attention into this otherwise little known sector. In an effort to recover the housing market from the unprecedented house price crash and skyrocketing foreclosure rate since 2007, United States Department of Treasury initiated the Making Home Affordable Program (HAMP) in March 2009 by providing financial assistance to the borrowers with difficulties of keeping up their mortgage payments.

HAMP mandates participation of Federal Mortgage National Association (Fannie Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac). It also provides strong financial incentives to lenders and servicers to participate. HAMP is a payment reduction modification, which is to reduce the borrower's monthly mortgage payment. HAMP modifies the eligible borrowers' mortgage contracts in order to make their monthly payments to an affordable level, which is determined by a target 31% of debt to income (DTI) ratio. HAMP modifies a few key terms of the original contract, which includes modifying an ARM into a FRM with a lower rate, extending the mortgage to a longer term product i.e. 40 years, and forbearing a portion of the principal of the mortgage to the maturity. By October 2011, HAMP has offered 1.95 million trial modifications and 0.83 million applications were admitted into permanent modifications. Although HAMP had been widely expected to be ineffective, it performs well with a consistent lower than industry benchmark re-default rate. Treasury attributed HAMP's performance to the significant reduction in the mortgage payments.

The organization of the article is as follows. We begin in Section 2 by describing the data set used in this research. In Section 3 we show the correlations of the HAMP performance by different factors. We conclude in Section 4.

2. The Data

U.S. Department of Treasury publishes a series of rich data sets of HAMP at its Financial Stability website with URL:

http://www.treasury.gov/initiatives/financial-stability/results/Pages/mha_publicfile.aspx

These data sets contain an initial snapshot of the modified loan as well as the performance of the modifications over time. It contains modified loans at various stages of the life cycle of a HAMP modification: rejection, trial, permanent modification, payout, and re-default. In addition to capturing the first lien modifications, the data set also contains the second lien modification details. These data sets are organized by using U.S. primary geographic regions. This article focuses on the analysis of the data set which contains the first lien modifications of all primary geographic regions. As HAMP continues to accept new modifications, the data sets continue to grow. By November 2011 the data set contained 2.48 million records and 169 attributes.

3. Performance Analysis

The performance of HAMP can be explained by many factors including borrower's characteristics, property attributes, and mortgage terms. We have selected five important mortgage attributes: location (Metropolitan Statistical Area, MSA), income, loan to value (LTV) ratio, payment reduction ratio, and forbearance amount to examine their correlations with the re-default rate.

3.1 Location Factor

It is widely accepted that the performance of housing market fluctuates across different local markets. Our study shows that the performance of HAMP also fluctuates with the performance of the underlying local housing market. We examine the HAMP's performance by comparing the re-default rates of top 10 MSAs with largest amount of loan modifications. As shown in Figure 3.1, Phoenix, Atlanta, Orlando and Las Vegas have the highest re-default rates. In fact these four cities have experienced the most significant housing price corrections during 2007-2011. And three cities in California: San Francisco, San Diego and Los Angeles enjoy the lowest re-default rates and relatively robust housing price recovery after the 2007 financial crisis. It is not a coincidence that HAMP's performance is positively correlated to the health of the underlying local housing market.

3.2 OLV Factor

OLTV (original loan to value ratio) is a direct measure of the owner's equity in the underlying house at the time of modification. Borrowers tend to default more easily if he has little or no equity in the underlying house. We compare HAMP's performance for different (OLTV) groups. As shown in Figure 3.2, higher OLV groups tend to re-default more frequently than lower OLV groups.

3.3 Income Level Factor

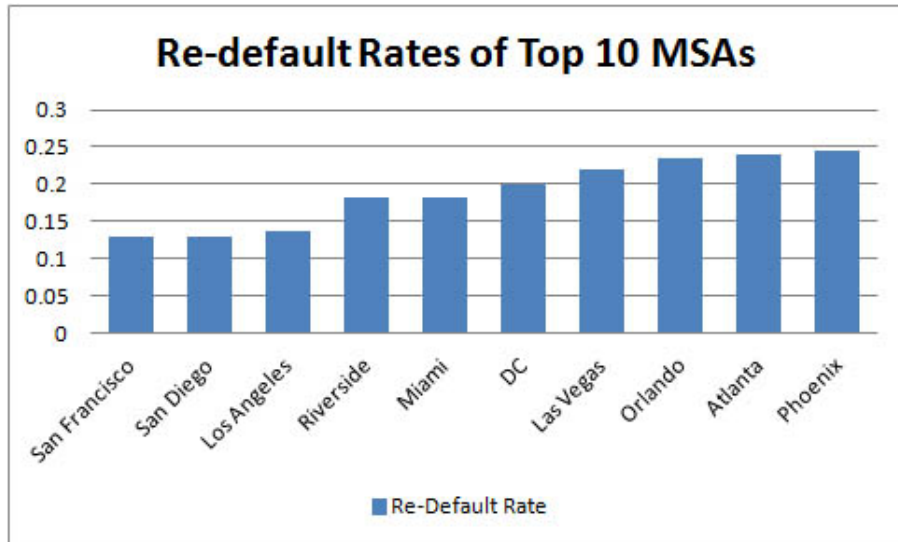


Figure 3.1 Re-default Rates of Regions with Largest Numbers of Loan Modifications

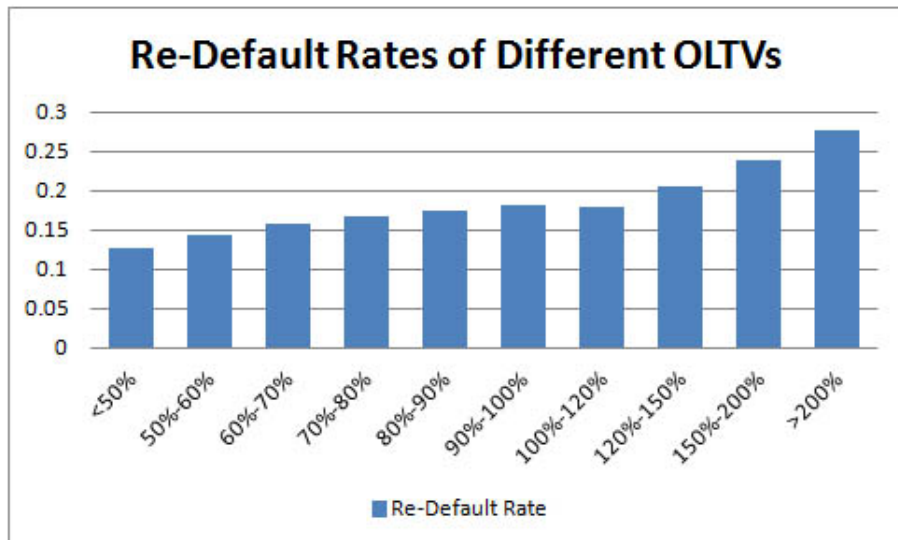


Figure 3.2 Re-Default Rate of Different OLTVs

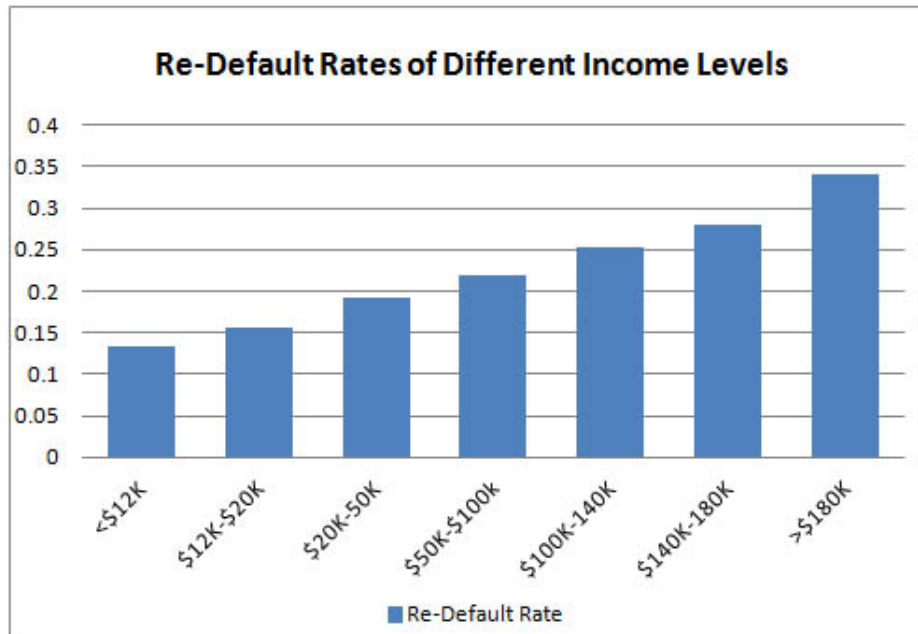


Figure 3.3 Re-Default Rate of Different Income Levels

It is interesting to compare HAMP's performance at different income levels. As shown in Figure 3.3, there is a clear pattern that higher income groups tends to re-default more frequently than lower income groups. This is somewhat counter intuitive as mortgage default is traditionally regarded as a solvency problem. A conventional explanation is that reduction of housing expense is less effective to solve financial problems of higher income groups than lower income groups. A less conventional explanation is that the higher income groups are more financial savvy and tend to voluntarily default more frequently.

3.4 Payment Reduction Factor

It is also interesting to understand HAMP's performance at different payment reduction levels, which is claimed by Treasury as the more significant factor affecting HAMP's performance. As shown in Figure 3.4, borrower groups with higher payment reduction tend to re-default less frequently than borrower groups with lower payment reduction. The result is consistent with Treasury's analysis.

3.5 Forbearance Factor

Forbearance is another unique feature of HAMP's loan modification. It is a set up that a portion of the principal of the mortgage will be foreborne to the maturity. During the term of the mortgage, the borrower does not pay interest on the foreborne portion of the balance. We are interested in comparing the re-default rates of modifications with and without forbearance. We found significant difference in re-default rate of these two groups. The re-default rate of modifications without forbearance is 23.3% while the re-default rate of modifications with forbearance is 13.5%.

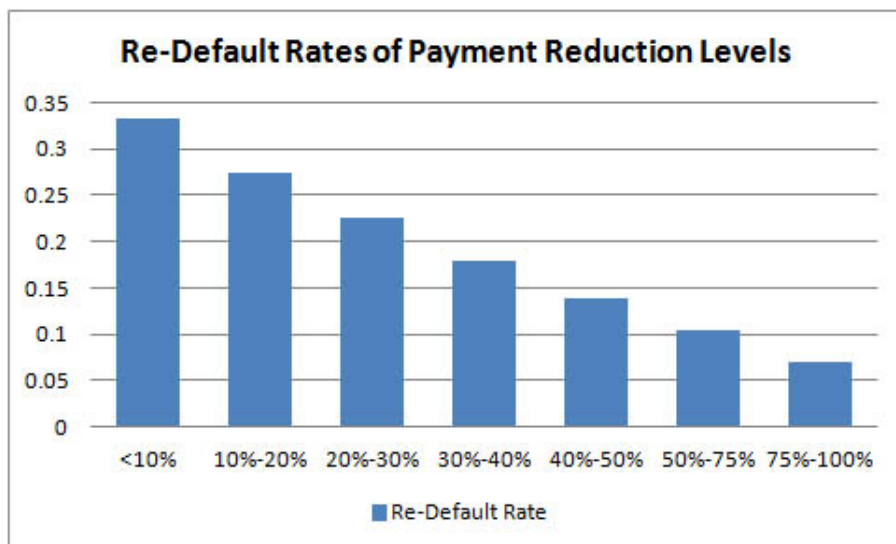


Figure 3.4 Re-Default Rate of Different Payment Reductions

4. Conclusion

Through our study, we identified a few factors that significantly impact the performance of HAMP. Local housing market health and payment reduction ratio are negatively correlated with the re-default rate. Income level and OLTV are positively correlated with re-default rate. In addition, the existence of forbearance can also significantly reduce re-default rate.

In future research, the study will be expanded to include other attributes related to loan modifications, and create logistic regression models to explain and predict HAMP's re-default rates. We also will study alternative types of loan modifications.

References

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