

Loan Modifications and the NPV Test: The Most Important Test You Never Knew You Took

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Despite the government's intention to assist millions of homeowners through HAMP (Home Affordable Modification Program), by far, the biggest complaint from homeowners is their frustration in actually obtaining a loan modification. The denial of modification applications is largely based on a little known, and less understood, financial calculation called the NPV Test (or Net Present Value Test). This article seeks to demystify this concept and provide homeowners with an understanding of this mathematical tool that may mean the difference between keeping and losing their homes, and what they can do about it.

Without a Crystal Ball, How Do Investors Make the Best Choice?

The investor holding your loan (or the loan servicer working on behalf of the investor) is attempting to make an optimal business decision in the face of uncertainty – will the investor be better off financially if the loan is modified? The uncertainty arises from several sources; not knowing if the borrower will ultimately perform (make payments) on the loan if it *is not* modified or if the borrower will perform if the loan *is* modified, not knowing if property value will rise or fall, not knowing how long it may take to foreclose on the property, and so on.

Faced with this uncertainty, servicers use the NPV methodology developed by the U.S. Treasury Department that reduces the decision to an objective, impartial, mathematical calculation. If the proposed modification passes the NPV test, the modification is approved. If it does not pass the NPV test, the modification is denied. It's that simple.

The NPV test involves quantifying potential outcomes and assigning probabilities to them and utilizes two key concepts; 1) *expected value* of possible outcomes and 2) *present value* of an anticipated stream of future cash flows.

Expected Value – On Average, What Can I Expect from This Bet?

Expected value is a statistical concept that essentially answers the question – if I place a bet over and over again, on average, what can I expect to gain? It assigns a single numerical value to a series of potential outcomes by multiplying each outcome by its probability of occurring and adding the results.

The base NPV model considers four possible outcomes in resolving a troubled loan:

1. Modify the loan and the borrower performs
2. Modify the loan and the borrower defaults
3. Do not modify the loan and the borrower performs
4. Do not modify the loan and the borrower defaults

And in performing the NPV test, two expected values are calculated:

Expected Value of Modifying Loan =

Probability of performing X present value of performing modified loan
plus
Probability of default X present value of defaulted modified loan

Similarly

Expected Value of Not Modifying Loan =

Probability of performing X present value of performing unmodified loan
plus
Probability of default X present value of defaulted unmodified loan

If the expected NPV of the loan in its modified state is greater than its expected NPV in its unmodified state, the loan passes the NPV test and the servicer must grant a loan modification¹, assuming that other criteria are met.

Present Value – How Much Is That Future Dollar Worth Today?

The present value concept comes from the world of finance and is a way to convert dollars anticipated to be received in the future into a value today, or present value. It is based on the fundamental tenet that a dollar received today is worth more than a dollar anticipated to be received two years from now, which is in turn worth more than a dollar anticipated to be received four years from now. The conversion of future dollars into present dollars is accomplished by discounting each future cash flow by a certain factor, where this discount factor increases as cash flows are pushed further into the future.

“Why is this relevant?” you may ask. If an investor does not modify your loan, and you default, the investor will pursue foreclosure and will, within a relatively short time, take back the property, liquidate it, and receive some cash proceeds, say within 6 months.

If the investor modifies the loan, and the borrower makes payments for a while but then defaults, two important considerations arise; 1) the investor receives the foreclosure proceeds further into the future, giving them a lower present value and 2) the value of the property may decline and the ultimate foreclosure proceeds may be less than they would be without the modification. The combination of these factors significantly reduces the present value of this scenario.

The non-default scenarios also have their own expected future cash flows, which include the existing or modified monthly payments, as the case may be, plus the ultimate payoff of the loan.

¹ The mandate to modify under these circumstances is applicable to investors/servicers participating in the HAMP program.

Thus, ultimately, each of the four outcomes described above results in a series of anticipated future cash flows, which are converted into a present value through the discounting process.

Incentives for the Investor

To the casual observer, it may be perplexing that investors would be willing to grant borrowers such concessions as are incorporated in typical loan modifications (for example, reduced interest rates, extended terms, and sometimes principal reductions). Obviously, one consideration is that a modification of the loan will increase the likelihood that the borrower will be able to pay off the loan in full.

Another important consideration is the granting of various subsidies by the U.S. Treasury, which are factored into the anticipated cash flows in the NPV calculations. Examples of these incentives are:

- reimbursement of a portion of the payment reduction
- \$1,500 incentive if the borrower is current at the beginning and end of the trial period
- a Home Price Decline Protection Incentive which pays an incentive to investors to offset additional risk when home prices decline

The inclusion of these subsidies can help push the NPV test into positive territory, and lead to the approval of the modification.

Conclusion: What's a Borrower to Do?

How does this knowledge help the typical homeowner seeking a loan modification? At a minimum, some comfort can be taken in knowing that, behind all of the forms and faxes and re-faxes, there is an objective, uniform and pervasive methodology being applied to make the loan modification decision. But more importantly, *while there are many aspects of the NPV calculation that are out of the borrower's control (such as home values, appreciation forecasts, foreclosure and resale assumptions, etc.) there are some elements of the NPV calculation that the borrower can control.* Household income and expenses play a crucial role in not only establishing hardship, but also as determinants of the probability of a borrower default. Homeowners can get help from those agencies and service providers who can perform the NPV test and let them know if there are legitimate adjustments they can make to help pass the test. Given the potential for significant reductions in monthly payments, and the ability to retain ownership of your home, it is certainly worth the effort required to “pre-qualify” and give it your best shot.

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