Maximizing Recovery Value by Avoiding Foreclosure
A Win-Win Approach

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If you are a mortgage lender suffering losses on foreclosures, a new approach to loan modifications offers a way to significantly reduce those losses. **Equity Based Modifications** will typically increase recoveries by 20% or more compared to sales of foreclosed houses.

This paper's objective is to provide the context and salient features of today's crisis in the mortgage market and an analysis of the implications for effective solutions.

The starting point is a look at default drivers historically and today. This informs an analysis of banks' problems in dealing with the current environment, the potential role of inflation in a solution, and the perspectives of borrowers. These analyses in turn imply the key features required for an optimal solution. An example of an Equity Based Modification from Recovery Partners then illustrates a potential solution before the paper concludes.

Default Drivers Matter

Academic studies[1] show that there are two main classes of factors which drive default on residential mortgages in the U.S.: borrower circumstances and property values. Prior to the current downturn, the last significant decline in home prices in a major U.S. real estate market was in California in the early 1990's (1991 to 1994).

Borrower Life Crisis Events

Over the last 14 years mortgage defaults have been related almost exclusively to triggering events specific to individual borrowers. Job losses, divorce, health problems, or other

[1] See "Residential Mortgage Default" by Ronel Elul published by the Federal Reserve Bank of Philadelphia for a survey of the literature.

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"Cosmetic" loan modifications bridge borrower liquidity crises by deferring interest without materially reducing principal or present value of the loan.

traumatic events led to defaults in cases where the borrower often had positive equity in the property. Consequently banks' response to defaults has been to accept a deferral of some payments in order to help borrowers past short term difficulties. Generally these loan modifications provide for adding the missed payments to the loan balance and re-amortizing the balance over the original term or a slightly lengthened repayment period. Such modifications, which we will call "cosmetic" modifications, have little if any impact on the present value of promised loan payments since no principal or interest is forgiven and the bank charges the borrower interest for the payment deferral. When default is caused by short term borrower life setbacks, (i.e. the cause is a liquidity constraint) cosmetic modifications bridging the borrower's liquidity problem are an appropriate and profit maximizing policy.

Negative Equity

For the first time in 14 years banks must deal with significant defaults motivated by negative equity – this requires a different response.

The second major driver of mortgage defaults identified in the academic literature is a decline in property value below the loan amount – negative homeowner equity. When the loan amount exceeds the house's value, the borrower has a financial incentive to default because the liability extinguished exceeds the asset given up. This situation can be analyzed by recognizing it as a right to sell the house for the amount of the mortgage (i.e. it is a put option on the house). When the financial incentive for borrowers to default is large enough, many borrowers will default even though they have the ability to pay. Cosmetic loan modification in these situations will generally not result in continuing loan payments by the borrower and will not be optimal for the banks.

If negative equity is combined with a borrower income loss event, the bank will have no choice but to foreclose. Otherwise, there are better alternatives.

Analysis: Banks have a Problem

Mortgage defaults driven by negative equity will produce real economic losses. The key issues are how to minimize these losses and when do they get recognized in the books.

Bank Capital as Measured by Accounting Rules

In the current crisis, fair value accounting has resulted in huge charges against capital for securities subject to market pricing. Complete cessation of trading for many assets leads to completely

The interaction of accounting rules and capital requirements provides incentive to delay foreclosures.

unpredictable write downs and therefore regulatory risk for banks. In this environment virtually all banks must be in capital conservation mode. Given the very large losses inherent in bank portfolios not subject to fair value accounting, banks cannot afford to recognize the full extent of likely losses until sufficient earnings are available to absorb these losses. Thus there is an incentive to avoid foreclosures or delay them. Hence cosmetic loan modifications have some value to the extent they can delay recognition of loan losses.

Cosmetic Loan Modifications Produce High Re-default Rates

While accounting rules may allow the banks to delay recognition of these losses for regulatory capital purposes, these delaying tactics have real economic costs. Continuing declines in housing values mean that delayed foreclosures generate less income than those carried out currently. Cosmetic loan modifications can generate a payment or two, but once the foreclosure clock is reset, the borrower still has a large financial incentive to default again. As the table below from the Comptroller of the Currency shows, re-default rates are were very high for loan modifications done in the first quarter of 2008.

Banks cannot earn back the costs of delaying foreclosures through cosmetic modification; this strategy will ultimately make banks' capital shortages worse.

Modified Loans 30+ Days Delinquent (30+ Re-default Rate)		
	Three Months After Modification	Six Months After Modification
First quarter 2008 loan modifications	37.14%	55.14%
Second quarter 2008 loan modifications	40.52%	--

Estimating Economic Costs of Foreclosure Delay

Cosmetic loan modifications delay the ultimate foreclosure by at least 6 months and generate relatively little cash-flow compared to current property depreciation rates. An extrapolation of the above re-default rates to an ultimate re-default percentage of 75 - 77% implies that the ultimate cost of delaying foreclosures through cosmetic modifications will be additional losses of 40 - 50% of the annual depreciation rate. Under current conditions, bank earnings rates are insufficient to make up for these additional costs and thus we can expect these practices to exacerbate the capital shortage.

Foreclosure Costs Eat Up a Large Part of Collateral Value

The foreclosure process produces costs that could be avoided if the borrower remained current in paying the loan. The four main components of these costs are:

A. Physical damage from deferred maintenance and/or deliberate vandalism of the property.

B. The sales price discount from appraised value needed to sell a foreclosed property quickly.
C. Real Estate brokerage commission to sell the property.
D. Foregone loan payments from the default date to foreclosure sale date.

A working paper[2] written in 2004 by Anthony Pennington-Cross of the Office of Federal Housing Enterprise & Oversight concluded that foreclosed homes fell 22% behind typical non-foreclosure sales. He found that such discounts increased in markets where prices were dropping. The data set used in this paper included almost 12,000 foreclosure sales during 1995 to 1999 – a period of generally rising home prices. It is very likely that current market discounts are far larger than estimated in this paper. Another paper, written by Christopher L. Cagan estimated foreclosure sales discounts in the 1st half of 2006 based on sales prices compared to appraised values. Discounts for 34 cities ranged from 0 to 46.6%.[3] A graph of discounts against foreclosures as a percent of each market seemed to indicate that discounts increase about 2% for every 1% increase in the prevalence of foreclosure sales within a market.

In California, the Foreclosure Present Value is 25-41% less than the owner's appraised value.

Taking into account the studies' estimates and current market conditions, the sales discounts in California are likely to fall in the 20 – 35% range. Adding in the other components that determine a bank's all in Foreclosure Present Value (FPV) the discount compared to appraised value in the hands of the borrower likely falls in the range of 25 – 41%.

Existing Processes Are Not Optimal for This Environment

Large and continuing widespread housing price declines have not been seen in the U.S. since the 1930's. In our lifetimes no one has operated in an environment where so many borrowers had such large financial incentives to default. The processes banks have in place for dealing with delinquent mortgage loans were not designed with this environment in mind and consequently

[2] "The Value of Foreclosed Property: House Prices, Foreclosure Laws, and Appraisals" by Anthony Pennington-Cross 2004

[3] In July 2007, First American Core Logic produced a white paper study of REO property sale discounts which highlighted the many local market variables that influence foreclosure sale discounts. The message of this study is that a model needs to account for a much of the local variation as possible to minimized estimation errors.

resources and strategies have been largely ineffective in stemming the large increase in foreclosures that is destroying the value of bank portfolios.

Second Order Effects

Default and foreclosure rates have gotten large enough to produce indirect effects on the value and performance of banks' remaining un-defaulted mortgage loans. Every additional foreclosed property that the bank discounts for sale into the market, puts downward pressure on the value of all other houses in that same market. These price declines then wipe out the equity of more borrowers and produce increased incentives to default. Alternatively, avoiding foreclosure sales by forgiving principal would also provide significant new incentives for existing borrowers to default. This feedback effect is a serious threat to banks' solvency.

The self reinforcing spiral of foreclosures and defaults requires a fast solution directed at the root causes to stem capital destruction.

The Value of a Speedy Solution

While banks may eventually develop processes and procedures to deal with these problems, the financial damage is accumulating very rapidly every day. Thus there is considerable time value for implementing solutions. Every day the bank finalizes a foreclosure it produces a loss that could be avoided if solutions could be implemented off the shelf. Conservation of capital requires that banks get help from outside immediately to buy time to adapt their internal processes over the long run.

A Bailout from Inflation

Both the rapid increase in the Federal Reserve's balance sheet and the huge stimulus package proposed by the government are inflationary. Inflation is the least painful cure available to address the hangover from the housing bubble and our leaders have and will enact whatever policies it takes to reflate the economy and boost incomes and housing prices. In the long run this benefits the banks by increasing the nominal value of mortgage collections. (It also decreases the real value of fixed bank liabilities).

Unfortunately the inflation knight will ride to the rescue too late to save most conventional mortgages recently in default. Cosmetic loan modifications are unlikely to provide justification for delaying foreclosures for more than 6 months and this will not be long enough to produce positive equity for these borrowers.

Inflation and Housing Appreciation Rights

Banks can capture some of the benefits of the planned inflation rescue package if they can obtain rights to houses' long run price gains. If the bank holds rights to a share of a borrower's home appreciation there may be significant upside in such a contract. Even if the bank sells those rights immediately, they will have recouped a significant piece of capital that would otherwise be lost in a foreclosure sale.

Borrowers' Perspectives

A current reduction in principal and payments is far more valuable to a borrower than future appreciation rights.

Not all borrowers will default just because it is in their financial interest to do so. Some will pay their full debt no matter what. Others, however, will weigh the benefits of default against perceived default costs to make their decision. Mortgage defaults may inflict costs in the form of higher interest rates on other debts or perhaps a complete cutoff of other credit. There are also reputation effects to account for since a default reduces credit scores that are used for many different evaluations these days. On the benefit side, borrowers look to reduced housing costs, elimination of debt in excess of house value, and an opportunity to buy housing at a lower price before defaulting on their current loan.

Borrowers may value future appreciation rights on their house differently from a bank. In particular they are likely to extrapolate recent depreciation trends far into the future and they tend to have higher discount rates for cash flows in the distant future. Thus the perceived value of appreciation rights may be much lower than the value of such rights to the bank.

Key Features of an Optimal Solution

An Optimal Solution requires:
NPV > FPV

An optimal solution must include a modified contract or package of contracts in which *expected* net present value (NPV) is greater than the estimated foreclosure present value (FPV).

Expected NPV here is a technical term meaning the probability weighted NPV across the full range of potential outcomes. Of course, if the entire modified package is immediately saleable then the expected NPV will be current market value.

Modified Loan Terms

Loans must be re-underwritten from scratch to determine the actual income that is supported by documentation. Given the low

level of 30-year rates, all loans should be priced at the 30-year par loan rate. Where possible loans should be re-originated for sale to the agencies or other government program – assuming this achieves maximum value.

Current Financial Incentive to Pay
The loan to value (LTV) ratio must be set below 100% to provide a current incentive for the borrower to restart and maintain the new loan payments.

Low Probability of Future Negative Equity
Set the loan amount low enough to avoid any significant probability of a new default by using an econometrically derived forecast of future housing prices with confidence bounds (or probability distributions). Obtain an estimate of borrower perceived default costs and use this to calculate the value maximizing LTV assuming rational exercise of the default option.

Equity Based Modification
Borrowers must give up future appreciation to the lender:

1. Optimize incentive effects by setting the share high enough to deter further defaults within the lender's portfolio but low enough that the borrower considers it a reasonably fair deal (80% share for the bank is the preferred target here).
2. Impose a penalty on early termination to prevent any immediate benefit for the borrower in extinguishing the appreciation rights.
3. Standardize terms to facilitate separation from the loan and securitization.

Eliminate Second Liens
In the case where there is a second mortgage, it must be eliminated to insure the borrower receives the benefits of the principal write down and therefore the incentive to keep payments current going forward.

Marketing Solutions to the Borrower
For any borrower who reaches the point in the foreclosure process that is 90 days before foreclosure, there should be an aggressive marketing campaign to sign up the borrower for the solution rather than foreclosing.

Analytical Re-Decisioning

To ensure compliance and maximum values, the process should be automated to the extent possible with analytical determination of terms offerings based on algorithms and rules tailored to particular markets and lenders. Loan amounts should depend on foreclosure value and future house price appreciation forecasts.

Recovery Partners – Working Through an Example

Let's suppose the bank made a loan of $600,000 at 5.8% on a property with a current value of $500,000 (in the hands of the borrower). Based on analysis of available research on borrower behavior and a corroborating survey, we estimate the borrower's perceived cost of default at $25,000. Recovery Partners would go through the following step by step process to re-underwrite the loan and ensure that the resulting contract package exceeds the present value of foreclosure.

A. Screening

1. Pull origination income data and calculate maximum loan payment for borrower. Based on the assumptions above this should be roughly $3,500 per month[4].
2. Pull current 30 year loan rate (5.1%) and calculate maximum supportable loan (ML) per the banks underwriting rules. If rules haven't changed ML = $647,790.
3. Pull property data and estimate all-in Foreclosure Present Value (FPV) for the particular property or use the bank's estimate. We assume for this example that FPV = 350,000. Calculate preliminary Present Value of Appreciation Share at maximum share – 80% (APV). Assume this is 8% of estimated property market value: $40,000 in this case.
4. Test Feasibility of Loan Modification – If ML + APV – Fees > FPV continue. Otherwise reject and send to foreclosure. This passes easily: 647,790 + 40,000 – 15,000 > 350,000.

B. Calculate Initial Terms for Loans passing screen

1. Pull automated appraisal showing $500,000 (and calculate foreclosure discount - 30% here).

[4] 600,000 * loan constant of 7% divided by 12.

2. Pull Case-Shiller price forecast and confidence bounds for area of property - calculate minimum property value (MV). We choose the 90% lower bound for the lowest year. Borrower default costs determine exactly where to choose the optimal minimum value – say this is 79% of current value: 395,000.
3. Recalculate updated present value of Appreciation Share (APV) – assume this is still $40,000.
4. Calculate loan principal offer as Minimum of (ML, MV) = Loan. In this case its $395,000.
5. Test Feasibility of Loan Modification – If Loan + APV – Fees > FPV continue. Otherwise reject and send to foreclosure. In this example we have 395,000 + 40,000 - 15,000 > 350,000 so we continue.

C. Pro-active Marketing: Make Initial Modification Offer to Borrower

1. Send letter outlining potential terms – contingent on a) full appraisal and b) updated income information with documentation
2. Follow up with phone call – sell benefits of lower payment and current equity versus losing house.

D. Firm up Modification Offer to Borrower

1. Obtain borrower current income and re-underwrite loan maximum (ML). Let's say current documented income will only support a payment of $2,500 per month so the new ML drops to $462,828. This is still above MV above so it does not affect our terms.
2. Test Feasibility of Loan Modification – If ML + APV – Fees > FPV continue. Otherwise reject and send to foreclosure. Again it passes same as in step B.
3. Get full appraisal - with borrower paying cost.
4. Based on new appraisal recalculate minimum property value (MV). Let's say the new appraisal comes in at $510,000. This bumps up MV to 402,900.
5. Recalculate loan as Min(ML, MV) = Loan = $402,900.

6. Final Decisioning – choose Modification or Foreclosure. Here modification provides NPV of 427,600 compared to foreclosure value of $350,000 so the bank increases its recovery by $77,600.
7. Present firm modification offer and pro-actively sell benefits to borrower versus foreclosure.

E. Implement Modification for Borrowers who accept offer

1. Get implementing documents signed and recorded – New Loan + Appreciation Share Rights
2. Bank pays modification fees at closing.

F. Realized Value of Modification

1. Sell loan to agency or get guarantee and securitize
2. Securitize and/or sell Appreciation Share Rights

Conclusions

The first nationwide significant depreciation in housing prices since the 1930's has rendered banks' traditional loss mitigation strategies ineffective. Foreclosures are causing material losses and a feedback loop of downwardly spiraling collateral values that threaten bank solvency. Cosmetic loan modifications, so prevalent in the industry up until now, cannot solve the problem caused by large financial incentives for borrowers to default. Banks must quickly bring in outside help that has the capability to implement a new class of workout solution – Equity Based Modifications – so as to preserve capital and maximize recoveries in the short run. These new modification strategies provide significant additional value and upside potential via appreciation sharing rights granted to the banks by the borrowers. These new contracts also serve to discourage other borrowers from defaulting just to access principal relief. Recovery Partners is a company set up to provide a streamlined outsourced solution for banks seeking to quickly implement **Equity Based Modifications**.

About the Recovery Partners: Recovery Partners is a group of finance and real estate professionals that have come together to propose a pro-active approach to stopping foreclosures which will benefit all parties relative to the status quo. The company utilizes sophisticated mortgage and real estate analytical software combined with efficient workflow management to deliver fast, profit maximizing turnarounds on loans otherwise headed for foreclosure.