Industry Buzz: The New Risk Revolution

by Dr. Mark Fleming, Chief Economist, First American CoreLogic

If you are rowing a boat across the ocean and want to make a swift, clean crossing, you put as many oars in the water as possible. Navigating the sea of residential mortgage-risk information to negotiate an effective, low-risk loan also requires a fast, integrated evaluation of the risk of default and losses, as well as the risk of fraudulent transactions.

Until now, traditional industry methods for evaluating these risks have largely prevailed. But on the horizon is a new strategy to unify analysis of these disparate elements for the first time, along with the technology to support it.

Some early adopters of this approach are reaping big benefits by applying these strategies to understand their real risk exposure through the use of risk-behavior scoring. This article seeks to answer the question of whether risk-behavior scoring captures the elements that indicate an elevated level of risk not identified by traditional methods. It also assesses whether a risk-behavior scoring approach can help to isolate and detect the opportunity of fraud of profit.

What is risk-behavior scoring?

Risk-behavior scoring identifies credit risk, inflated proposed values, and fraudulent transactions by analyzing the risk associated with three different components of the transaction. Those components are the property, the third-party participants in the loan transaction (brokers, appraisers or loan officers), and the borrower’s risk.

While more traditional approaches to evaluating mortgage risk are based on the widely held assumption that as much as 50% of early delinquency and high loss severity is due to mortgage fraud, new evidence reveals that the reciprocal relationship is true as well. In other words, identification of early delinquency and loss severity can help detect and identify fraudulent behavior. This linkage underscores the critical nature of accurately determining the overall risk exposure layered within credit and collateral characteristics.

While extensive and detailed literature exists on measuring, evaluating and predicting the risk associated with mortgages, the financial options theory is recently gaining popularity as a theoretical framework used to analyze mortgages as financial instruments. (For an overview of credit risk modeling, see, for example, “An Introduction to Credit Risk Modeling” by Christian Bluhm, et al.)

Options theory treats the mortgage instrument as a contract between the homeowner and lender, where the homeowner has the option to buy the loan (the call option) in the form of a pay-off or refinance, or the option to sell the loan (the put option) in the form of a default. Traditional options theory characteristics (e.g., FICO® score, loan-to-value [LTV] ratio, property type, and owner occupancy) misstate the mortgage risk and say very little about the potential for fraud associated with the mortgage contract, because they do not account for the risk associated with the accuracy of the collateral valuation at the time of origination of the mortgage contract, the ability to maintain its relative value in the local market, and the mortgage risk associated with any third-party or with the borrower.

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To view the complete article, go to www.corelogic.com/pressroom/corelogic-in-the-news/
As I discussed in Part 1 of this series, the soft fraud epidemic is not only coming, it’s already arrived. The increased popularity of adjustable rate mortgages, in particular the “affordability” versions such as interest only and option payment structures that allow for negative amortization, means there is an increased likelihood that individuals will have their payments reset soon. A study by First American CoreLogic estimates that more than eight million loans originated between 2004 and 2006 will face some sort of payment reset over the next six to seven years.* Many of these loans will face payment resets that are significant, putting great strain on the borrower’s ability to meet monthly loan obligations.

For example, a loan with an original debt to income ratio of 30% and an impending 80% increase in the new loan payment would imply a debt to income ratio of 54%. Considering that debt to income ratios are usually calculated on a pretax basis, the borrower’s net after-tax obligation for the mortgage is even higher. This increased obligation would be difficult to handle for even the most credit worthy borrowers, but overwhelming for borrowers whose credit is more suited for the subprime market.

The borrowers with these payment reset loans will have decisions to make in an environment that is less than favorable. It is unlikely that their income rose sufficiently to compensate for the increased debt obligations, leaving only the option to inflate income to qualify for a loan refinance with what appears to be a reasonable debt to income ratio. The question that lenders face is how to efficiently identify those loans that seem the likeliest to be inflated.

Let’s consider salary validation to determine if the occupation, location, and experience stated by the borrower are reasonable. This has some validity, but many occupations have wide salary ranges; self-employed individuals have no occupational comparisons; and what seems like an overstated income based on occupation, location, and experience may simply be an individual at the top of his or her field. Consider, for example, the compensation for loan officers. Not only does it vary greatly based on the ability of the loan officer, but loan officers with the seemingly most significantly overstated compensations are exactly those who are most likely to remain employed when times are tough because they are the best at what they do. Therefore, underwriting based on these concepts slows the loans of the more credit-worthy borrowers and streamlines those of the less credit-worthy.

In addition to salary validation, the historical debt patterns of a borrower can also determine reasonable salary levels. Based on the premise that most people will buy as much house as they can reasonably afford, it is possible to evaluate the historical trend in housing expenses to determine reasonable and likely expectations of their current income. Combining salary validation methods based on stated occupation, experience, and location with predictive modeling of historical housing expense patterns yields an income validation technique that more accurately and efficiently identifies overstated incomes and soft-fraud risk.

The time has come for tools that quickly and efficiently validate income levels on loan applications, especially as borrowers struggle with payment reset issues on their adjustable rate mortgages. With more than $2 trillion of outstanding debt originated between 2004 and 2006, only the use of efficient income validation techniques will allow a lender or servicer to succeed in identifying the most suspect loans.

* “Mortgage Payment Reset, The Issue and the Impact,” 2007, Dr. Christopher Cagan, First American CoreLogic

To learn more about IncomePro™, the industry’s first real-time, integrated income validation tool, contact us at 888.288.2009, customerservice@corelogic.com, or visit us online at www.corelogic.com.
Quick Tips

When using IncomePro™, you can choose to run a report for two borrowers—a primary borrower and a co-borrower. However, because IncomePro renders a score for each borrower, IncomePro users have the ability to enter two jobs for one borrower, using the co-borrower’s job as the single borrower’s second job.

For more information, contact First American CoreLogic Customer Care at 888.288.2009.

Webinar Replay: The New Risk Revolution

In case you missed First American CoreLogic’s recent online event, “The New Risk Revolution,” a replay is now available for viewing at your convenience.

In today’s environment of tightening risk guidelines, how do you grow and protect your business at the same time? FICO was once the standard for evaluating residential loan risk. Then came triangulating risk from collateral, brokers, and borrowers. Now, there is a new integrated approach that more clearly identifies risk.

First American CoreLogic’s Chief Economist Mark Fleming presents actual portfolio studies that demonstrate the increased predictiveness of this innovative technology solution.

You can also read a full transcript of the post-presentation Q&A session by visiting the New Risk Revolution Webinar Q&A page.

For replays of other First American CoreLogic webinars, and to learn more about upcoming 2007 events, visit www.corelogic.com.

Homespun Hilarity

Oh, no! Another bad loan is going to ruin our pool again!!

Events at a Glance

Be sure to visit First American CoreLogic at the following events to learn more about our innovative solutions for detecting and managing fraud risk.

MBA National Secondary Market Conference and Expo
May 20-23, 2007
New York, NY

Predictive Methods Conference
June 11-13, 2007
Dana Point, CA
Remember, the risk score is not stating definitively that when a score is above some benchmark value the loan will not perform. Instead, it is saying the odds are higher that it will not perform.

Collateral Damage: The False Positive Myth
by Dr. Mark Fleming, Chief Economist, First American CoreLogic

“Collateral damage” is defined as damage inflicted on unintended targets by virtue of their proximity or relationship to the intended target. While this term is most often associated with battlefield conflicts, not the mortgage loan industry, in the war to identify fraud and performance issues prior to funding a loan, it appears that collateral damage in the form of “false positives” may be just what is occurring. A false positive is a loan flagged as high risk when in reality it is low risk.

While loan officers complain that “we get too many false positives,” and “the vast majority of loans that get flagged with a high-risk score will perform and perform well,” new evidence suggests that ranking and then contemplating the risk of some loan files relative to other files can help streamline decision making with respect to false positives. Let’s take a closer look at how this is possible.

Measuring mortgage risk involves understanding and stratifying risk that is derived from a variety of factors. The obvious factors are the riskiness of the borrower, the terms or structure of the loan, the quality and sustainability of the collateral, and the riskiness of the third-party mortgage contract participants (broker, appraiser, loan officer, closing agent, et al). Scoring the risk of all of these factors together allows one to rank-order loans from highest to lowest risk as a function of these risk factors. A risk score ultimately indicates the likelihood that a loan will become delinquent and experience loss severity that is higher than a loan with a lower risk score.

For example, loans with the highest FICO scores and lowest LTVs sometimes default, and many of the loans with the lowest FICO scores perform. The odds that these loans will perform are very different. Mortgage lenders use the tools at their disposal (risk scoring) to identify the odds that a loan will perform based on the risk characteristics that can be observed. The better the tools used to stratify mortgage risk, the better the odds of correctly identifying loans that perform from those that don’t. For any risk score there is an associated likelihood that loans with that score will perform. The better the tool generating the risk score, the closer the predicted odds are to the observed actual odds for that score. In other words, if a particular risk score identifies that three in ten loans with that score will experience serious delinquency then we would expect that the actual rate of seriously delinquent loans with that score is something close to three in ten. Ideally, the higher the odds for a given score, the lower the false positives.

Again an example may illustrate this well. If the odds that a loan will default are 3 in 4, then the false positive rate is 1 in 4. If the odds are 2 in 4 that a default will occur, then the false positive rate is also 2 in 4. It is expected that the risk score should be higher for the group of loans with a 3 in 4 odds of defaulting versus the risk scores for those loans with 2 in 4 odds. Therefore, risk scoring will always generate false positives, and the odds associated with the risk score indicate the false positive rate.

But this assumes the risk score is treated as a binary indicator of an adverse event, which was never the intent. The real question is whether the risk scores are more efficient (generate fewer false positives or have increasing odds ratios) as they indicate higher risk.

The efficiency of a risk score depends in part on how the lender chooses to define performance. Each lender has its own basis for the definition of a bad outcome, such as a 90-day delinquency, first payment default, early payment default, REO, etc. Under this pretext, a false positive is a loan that is not meeting the chosen definition of a bad outcome but has been scored with a risk score above some threshold. But remember, the risk score is not stating definitively that when a score is above some benchmark value the loan will not perform. Instead, it is saying the odds are higher that it will not perform.

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There is a way to structure the test so that the odds can be measured against the risk scores to determine the overall efficiency of the risk model. The faster the odds increase as the risk score rises, the more efficient the model is and the lower false positives will be for any given score cohort. This is accomplished by taking a group of properties for which there is known loan performance data and retroactively scoring them. In other words, score them based upon information that would have been known at the time the loan was being originated.

The act of retrospectively scoring the loans is done to replicate how the score would be used in the production environment when the decision to fund the loan is being undertaken. If the risk score is predictive of the measure of adverse loan performance decided upon by the lender, the odds that a non-performing loan is identified will be higher the higher the risk score. The odds are calculated for each score value by counting all the “bad” loans relative to the total of “goods and bads.” For example, if a low risk score had 100 loans of which ten were bad and 90 were good, the odds ratio would be 10% (10/100). A high-risk score may also have 100 loans of which 30 were bad and 70 were good. In this case the odds ratio is 30% (30/100). This clearly shows that the score is indicating an increasing likelihood of the bad event, but it is never 100% certain. While the risk score is objectively measuring the riskiness of the loan, the lender’s opinion of false positives will be based on their individual determination of what constitutes a bad loan and where they decide to draw the line in the range of risk score values.

Consider again the high and low FICO loans discussed above. It is a well-established principle in mortgage lending that the odds the high FICO loan will not perform are lower than the odds the low FICO loan will perform. So if the odds are calculated on a pool of loans as described above for different levels of FICO scores, false positive rates can be constructed for any FICO group. The findings from this exercise demonstrate that FICO generates false positives like any mortgage risk model, yet we often forget that it is a risk model with these characteristics. Yet loan officers never complain about FICO scores generating too many false positives!

Because the risk scores can stratify or rank order the odds that one loan will experience adverse performance relative to another, they can be used to dictate the necessary level of underwriting due diligence. In fact, the use of risk models has been one of the primary factors driving the growth and efficiency of the mortgage lending industry over the last ten years. Before the wide scale adoption of risk models, every loan was underwritten manually. The use of risk scores in automated underwriting engines has enabled the industry to more quickly and efficiently underwrite many loans. Risk scoring within automated underwriting helps distinguish those loans that should be underwritten minimally because the odds of adverse loan performance based on the risk scores from the loans that need extensive manual underwriting because the odds of adverse loan performance are much higher. The refinance booms of recent years have been made possible in some part due to the advent of these underwriting efficiencies.

Furthermore, the use of risk models has facilitated the liquidity of the mortgage market as participants in the market are able to more objectively measure, rank order, and stratify risk, which in turn speeds up the rate at which portfolios of loans are securitized. The myth that only a small percentage of those loans flagged as high-risk go bad is just that, a myth. Loans flagged as high-risk are more likely to have adverse performance than those that are low risk. False positives are red herrings when gauging a risk score. All risk tools produce false positives—the litmus test for such a tool should be its ability to rank order risk on a relative basis.

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For more information about AVMSелект, contact First American CoreLogic Customer Care at 888.288.2009 or customercare@corelogic.com.
May Flowers Bring Number Power!

*Popular Sudoku puzzle keeps “springing” up!*

To keep up the spring excitement, we’ve given our readers another round of the popular number puzzle, Sudoku! This month we’ve presented a puzzle with a “hard” difficulty level, as we have in recent issues. But, just as First American CoreLogic’s industry-leading solutions have risen to the ever-evolving challenges presented by mortgage risk, we’re sure you’ll ultimately prevail in this numbers game!

For those not yet familiar with Sudoku, the rules are simple: Enter a numerical digit from 1 through 9 in each cell of a 9x9 grid made up of 3x3 subgrids (called “regions”), starting with random digits already revealed in some cells (the “givens”). Each row, column, and region must contain only one instance of each numeral, 1 through 9.

![Sudoku Puzzle](image)