

The Hidden Patterns *of* FRAUD

Mortgage fraud against lenders is 10 times more pervasive than credit-card fraud today, with one in every 200 mortgage loans containing material misrepresentations that result in financial loss. With fraud losses exceeding \$3 billion per year, lenders are racing to find a better solution to this escalating problem. ■ The fraud

scientists at BasePoint Analytics LLC, Carlsbad, California, a leading fraud software and services firm, recently completed an extensive study of more than 3 million loans. The results provide lenders with a unique view into the hidden patterns of mortgage fraud. ■ This pioneering research, based on historical loans from assorted top-100 prime, subprime and alternative-A lenders, led scientists to draw

Technology trained to recognize patterns is helping mortgage lenders detect fraud. Three million loans were studied to find evidence of the precise loan traits and origination factors most commonly linked to mortgage fraud.

BY FRANK MCKENNA

LENDERS WITH FRAUD TOOLS AND STRONG RISK-MANAGEMENT ORGANIZATIONS WERE ABLE TO REDUCE THEIR EXPOSURE BY UP TO 50 PERCENT.

six primary conclusions about mortgage fraud today:

- The most serious fraud in mortgage lending today appears to be broker-facilitated.
- Employment, income and occupancy misrepresentations are the most common types of reported fraud in the industry today.
- Mortgage fraud losses probably will continue to rise as production slows.
- The first step in combating the fraud problem will be through accurate and standard definitions, and reporting fraud across lending institutions.
- Historical data can be mined and leveraged to help predict when fraud might be occurring in the future.
- Pattern recognition is one technique with a high degree of accuracy that can predict when fraud is occurring.

The importance of measuring fraud's impact

In recent years, more than 16 million mortgage loans valued at \$3 trillion have been extended in the United States annually. It is precisely this heavy lending volume that has prevented the establishment of industrywide fraud-loss reporting requirements. Even those lenders who attempt to measure fraud loss struggle to quantify the true impact of fraudulent misrepresentations on the eventual performance of those loans. In particular, lenders have a difficult time ascertaining when a small inflation of income might lead to a higher likelihood of loan default.

While management at some lenders puts performance measurement high on their priority list, others haven't been able to accurately quantify the impact of fraud on their organization. "If lenders don't measure their fraud exposure and loss regularly, they can't possibly manage performance effectively," says Avivah Litan, a vice president and analyst at Stamford, Connecticut-based Gartner who specializes in financial fraud. "When billions of dollars are at risk, performance measurement is a critical component of every fraud-management program."

Lender data can predict fraud risk

The BasePoint study was designed to provide a data-centric view into the effects of mortgage fraud on the lending industry overall, and on individual lenders. By analyzing a significant sample of historical loan origination and performance data, scientists can now provide the lending industry with benchmark statistics that quantify the level of losses associated with fraud.

The summary statistics of the study revealed that up to 9 percent of loan performance problems can be attributed to fraud. This includes the following:

- *Early-payment defaults (EPD)*— 50 percent to 75 percent of early-payment defaults can be tied back to material misrepresentation on the application itself.

- *Broker risk can be significant*—typically a small percentage of brokers submit most of the fraud to a given lender. In most cases, 100 percent of fraud and EPD losses can be attributed to less than 10 percent of brokers.

- *Fraud levels can vary*—the percentage of fraud originations to total volume can range from 0.07 percent to 0.75 percent, based on the lender's policies, whether the loan is originated via retail or wholesale, and the type of loan product being originated.

- *Employment, income and occupancy fraud are highest*—the study revealed that employment, income and occupancy fraud represented about 80 percent of identified fraud.

- *Loss severity is high*— On average, lenders will lose about 35 percent of the face value of the loan after foreclosure. If loans can be sold to the secondary market, lenders will lose an average of 20 percent of the face value of the loan, excluding commissions and cost.

Lender risk can vary widely

While each lender's fraud loss is unique to that lender's internal decisions and processes, the BasePoint study revealed that, in general, fraud losses can be determined by a number of critical factors: a) the lender's own risk policies and practices, b) the types of loan products the lender originates, and c) whether or not the loan was originated from a retail or wholesale channel.

Not surprisingly, lenders that had more aggressive risk-management policies and organizations were able to reduce their fraud exposure significantly. Lenders with fraud tools and strong risk-management organizations were able to reduce their exposure by up to 50 percent. The study revealed that loans booked through retail channels had significantly less fraud than loans booked through brokers.

According to BasePoint's research, alt-A lenders bear the highest level of risk, while prime mortgage lenders bear the lowest (see Figure 1).

How the data were analyzed

BasePoint analyzed fraud trends from the data, and measured and categorized the most significant trends in mortgage fraud.

Figure 1 Financial Impact of Fraud on Top-100 Lenders

Lender Type	Fraud Loss Risk
Prime	7 basis points
Subprime	25 basis points
Alternative-A	35 basis points

SOURCE: BASEPOINT ANALYTICS LLC, 2006

INCOME FRAUD ACCOUNTED FOR AS MUCH AS 50 PERCENT OF ALL IDENTIFIED FRAUD MISREPRESENTATIONS.

BROKER-FACILITATED FRAUD

The 3 million historical loans analyzed in the study were originated by 50,000 registered brokers. As is the case with any large population, most brokers submitted only good loans—but a small segment of the brokers studied proved to have a higher-than-average rate of misrepresentations and early-payment defaults.

In most cases, lenders that participated in the study experienced most of their fraud and EPD from a small overall percentage of brokers. In all cases, all fraudulent and EPD losses were found on loans submitted by 10 percent or fewer brokers.

In addition to a high concentration of fraud to certain brokers, there was also a wide disparity in the actual performance of loans based on the submitting broker. The research revealed a wide disparity in loan performance based on the broker (and more specifically, the loan officer) who submitted the loan.

Certain brokers submitted loans of which more than 50 percent went into default. The analysis suggests that these loan officers helped unqualified borrowers obtain loans by submitting falsified information.

Monitoring broker quality was a policy held by most of the lenders involved in the analysis. “We have rigorous criteria for our brokers, and we hold them accountable to the highest standards of ethics,” says Barbara Mallott, senior vice president and director of quality assurance for Houston-based Aegis Mortgage Corporation. “At the same time, we cannot turn a blind eye to the reality that broker fraud does take place. We monitor our loans very closely for potential fraud to protect our customers, our brokers and shareholders.”

An underlying catalyst for broker fraud seems to be the incentives that lenders offer brokers to submit loans to them. Broker incentives such as yield-spread premiums and rebates from lenders create an environment in which brokers may be tempted to put unqualified borrowers into homes they cannot afford.

BasePoint analysis indicates a correlation between the fees and points that a broker charged and the corresponding level of misrepresentation in those loan packages. So, for example, if brokers were charging higher fees, there was a higher likelihood that information in the package could contain some material misrepresentations.

INCOME FRAUD

Income fraud accounted for as much as 50 percent of all identified fraud misrepresentations. In most cases, income fraud was detected when incomes were significantly out of pattern for similar borrowers. Additionally, the scientists found a high correlation between income and employment fraud—meaning that when income was misrepresented, it was often accompanied by a misrepresentation of employment associated with that income.

EMPLOYMENT FRAUD

Employment fraud represented one of the largest categories of fraud loss. Among the predominant patterns that emerged from the data was the sharing of common fictitious employers across loan files. In some cases, 20 to 30 loans were submitted by one broker using a common fictitious employer.

FRAUD FOR PROPERTY

In this type of fraud, the applicant intends to keep the property and repay the loan, but he or she may have some credit issues that might prevent him or her from qualifying for a mortgage. In order to secure the loan, the applicant makes a few material misrepresentations on the mortgage application. Unethical brokers who know the system will often advise their clients on where to fudge application information in order to optimize the likelihood of loan approval. This type of misrepresentation is considered by many to be an innocent activity because it stems from a good-faith intent to obtain a mortgage that borrowers fully intend to repay, but it is fraud nonetheless. In fact, fraud for property constitutes 20 percent of all fraud, resulting in hundreds of millions of dollars lost.

OCCUPANCY FRAUD

Occupancy fraud, including straw buyers, was also evident in the data analysis. Lenders reported an increasing incidence of occupancy fraud that was primarily perpetrated to obtain better interest rates or to help unqualified borrowers get into properties by using the credit profile of a friend or family member. The rate of default on these loans was substantially higher, because non-owner-occupied properties represent significantly higher risk.

IDENTITY THEFT

Identity theft losses represented less than 5 percent of all lender-related losses. Most of the fraud identified was due to misuse of Social Security numbers, particularly among sub-prime borrowers. Interestingly, while identity theft losses were relatively low, lenders spend an inordinate amount of time flagging and reviewing potential misrepresentations of Social Security numbers. Most of the time, these misrepresentations were actual errors in the inputting of the Social Security number by the analyst or even the submitting loan officer.

Analysis shows that on their own, Social Security mismatches had a false-positive rate of more than 300:1, meaning that only one in 300 instances of a mismatch detected something actually fraudulent.

Applying pattern-recognition technologies

After analyzing the data, BasePoint scientists conducted a related study to test the concept of applying pattern-recognition models—technology that is used in most other financial

LOSSES FROM THE RECENT WAVE OF RECORD ORIGINATIONS CAN LEAVE LENDERS INCREASINGLY EXPOSED.

services industries today to identify when mortgage fraud might be occurring.

Pattern recognition is an unbiased, computer-based system that relies on using lender historical data to train the computer to recognize behavior patterns that are characteristic of fraud (and, conversely, patterns that are not indicative of fraud). These systems are not tied to specific businesses, but rather to certain patterns of behavior.

As fraud perpetrators move around to new locations, they bring their behavior patterns along with them. Hence pattern-recognition-based mortgage-fraud solutions immediately adapt to changing situations and offer alerts that are more focused on the actual fraud behavior (leading to lower false-positives, so fewer declined good loans). These solutions are not so dependent on sometimes inadequate fraud reporting.

With 15,000 examples of fraudulent loans in the pool, scientists mined the data to store previous patterns of fraud from those loans. They used these stored patterns to scrutinize future applications of fraud and to score loans according to the risk exhibited.

The results were extremely compelling. The pattern-recognition models were able to identify close to 50 percent of the fraud at a false-positive rate of 5:1, meaning that for every five applications reviewed, one fraudulent loan application was detected.

In addition to the highly accurate performance, the models were able to pick up patterns that were previously invisible to underwriters. For example, the model was able to identify an \$8 million fraud ring by detecting a common employer that was being used across 28 different applications.

Lenders cracking the code

Innovative lenders like Minneapolis-based Residential Capital Corporation (ResCap), the parent of GMAC Mortgage Corporation, Horsham, Pennsylvania, and Residential Funding Corporation, Minneapolis, are expanding their use of predictive models due to advancements in both the models and ability of providers to meet technical response-time requirements. Historically, risk models were used to assess value inflation on first-purchase transactions. ResCap's testing of collateral-risk models confirms their ability to detect both value inflation and transaction risk, and supports use of these models for additional loan types and in processes such as loss mitigation.

"Predictive models detect the subtleties of risk based on more data points than any single person can reasonably consider," says Susan Allen, collateral risk director for Residential Funding Corporation. "By exploiting the relationship between many divergent data elements, predictive models focus our resources on those transactions that require extra attention, and facilitate streamlined processes for lower-risk transactions."

For example, a good fraud model might be able to detect subtle patterns of income manipulation by looking at the aver-

age income for a certain profession in a certain state, compared with the income supplied by the borrower. If the borrower had a statistically significant deviation from the average, the model would incorporate that into its final risk assessment.

A well-tuned predictive model can easily identify all of the broker-related fraud issues outlined here. Customized fraud models have helped leading lenders reduce the dollar losses associated with fraud from between 25 percent and 50 percent in the first year, often yielding a near-immediate return on investment.

Fraud in the future

Lenders can actually expect to see an increase in fraud levels in the next 24 to 36 months. This projection is based on BasePoint's analysis that mortgage fraud can often take as long as three years to be completely recognized. The lengthy cycle of moving a house to foreclosure means that many lenders will actually be recognizing the impact of fraud that was originated at a time when production was much higher.

The declining loan volumes seen more recently coupled with the recognition of fraud that occurred two or three years ago, when volumes were much higher, means that the ratio of fraud losses to originated volume will probably increase significantly.

Based on their extensive research and work with lenders, BasePoint scientists predict lenders that apply more aggressive policies, processes and solutions (such as pattern recognition) to the fraud problem could experience up to 50 percent lower losses than lenders that address the problem merely reactively.

Losses from the recent wave of record originations can leave lenders increasingly exposed. And in the face of changing market conditions, brokers and other originators will strive even harder to maintain origination levels, intensifying the temptation for some to falsify applications to ensure approvals. Furthermore, homeowners with little or no equity stakes, who previously misrepresented their ability to pay, will find it increasingly difficult to refinance their way out of foreclosure.

There is no question that fraud is a serious concern for mortgage lenders and that advanced technologies can greatly help lenders curb the rising level of fraud against lenders. By exposing common fraud patterns and establishing key industry benchmarks, the scientists at BasePoint hope their research can serve as a catalyst for vastly improved fraud detection and enhanced profitability. **MB**

Frank McKenna is chief fraud strategist, co-founder and managing partner of BasePoint Analytics LLC, Carlsbad, California. BasePoint is a fraud software and expert services company helping eliminate fraud in the mortgage and global banking industries. He can be reached at fmckenna@basepointanalytics.com.