ValuePoint 4 Default™:
Methodology, Maintenance and Validation

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Background

Industry experts expect the volume of mortgage delinquencies and defaults to increase substantially in 2007 and 2008, causing lender expenditures for broker price opinion (BPO) and appraisal valuations to grow exponentially. During the loss mitigation process, multiple valuations for a property are common. Furthermore, most of these delinquent loans eventually cure and the expenses associated with valuations are never recovered from the borrower or investor.

Clearly, valuations with reduced costs and turnaround times would be a welcome alternative to the traditional valuation alternatives. While automated valuation models (AVMs) have quickly become the predominant valuation method for the vast majority of the nation's home equity lenders, they may not be the best option for servicers asked to evaluate potentially damaged properties.

Every AVM makes at least three critical assumptions that may not be applicable to homes with loans in some stage of delinquency or default:

1. The home is in average condition based upon neighborhood norms. Loan servicers know this is not true at least 50 percent of the time. At best, financially challenged borrowers tend to defer routine maintenance. At worst, they may inflict serious damage to the property.

2. The property improvements actually exist. Just because an AVM can be rendered on a property does not guarantee that the improvements are still standing. For this reason, loan servicers are well advised to secure pictures of properties with delinquent or defaulted loans.

3. There are no recent external circumstances that dramatically impact the property value positively or negatively. When confronting a defaulted loan, we are worried about newly discovered information, such as a leaking underground storage tank 200 yards above the property. Some properties experience stigma when heinous acts are committed on or near the property.

By their nature, AVMs cannot know these facts, creating a clear potential for inaccuracy and making it difficult to use traditional AVMs during the loss mitigation process. By ignoring both property-specific and certain neighborhood dynamics, the traditional AVM has a strong tendency to overvalue the property. While the AVM may offer cost and speed advantages, the overvaluation tendency is simply too problematic for most loan servicers.

To address this market reality, First American CoreLogic developed ValuePoint 4 Default™, an AVM that addresses the overvaluation and accuracy issues hampering the use of AVMs in loss mitigation.

ValuePoint 4 Default Applications

There are at least three lending scenarios for which ValuePoint 4 Default is best suited: early-stage loss mitigation on the first mortgage, loss mitigation for second mortgage lenders, and managing FFIEC requirements.

For early-stage loss mitigation, the most common course of action is to order a BPO, typically during the 60-90 days delinquency period. The purpose of ordering any valuation at this stage is to determine collection strategy (i.e., forbearance vs. foreclosure). Given that cure rates for loans in this stage of delinquency are roughly 50 percent, at least half the valuation costs incurred represent a true earnings drain on the servicing revenue stream.

At this early stage, ValuePoint 4 Default can provide a fast, inexpensive alternative to costly, time-consuming BPOs by determining likely REO value and identifying a subset of properties that will be good candidates for forbearance. The remaining sample can be further evaluated with BPOs. By combining automated tools with BPOs, both processing time and overall cost will be significantly less than with the full BPO-based procedure. Furthermore, properties with the highest likelihood of resulting in severe losses will be identified early, providing the servicer with the best opportunity to efficiently mitigate severity. For loans with higher delinquency rates, BPOs are appropriate to establish as-is value. By using ValuePoint 4 Default at early-stage loss mitigation, the lender is applying the tool to a comparatively low-level decision (collection strategy) that can easily be altered as events unfold.

Second, mortgage lenders frequently find themselves making collection-strategy decisions on relatively small-balance loans, which frequently are not worth the time and cost of traditional valuation methods. In these cases, ValuePoint 4 Default may be entirely appropriate and an excellent alternative to a BPO or appraisal.

Third, the ValuePoint 4 Default model may serve banks well in managing FFIEC requirements on foreclosed assets, providing values that are quick, inexpensive, and also support a more conservative approach in the write-down process.
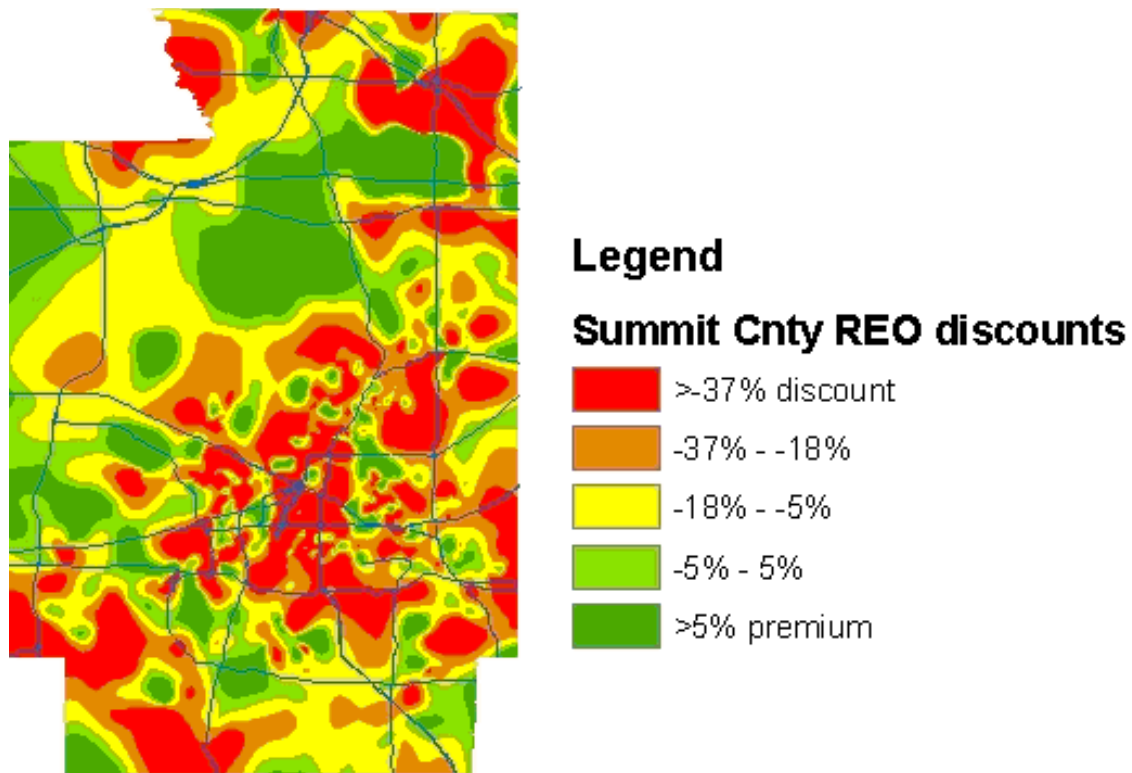
Modeling Methodology

ValuePoint 4 Default is a hybrid decision-analytics model that combines index, assessment, and neural-net methodologies with a proprietary reconciliation procedure that takes into account property-specific and micro-market factors influencing the foreclosure discount experienced by an REO property. By analyzing property and micro-neighborhood trends, conditions, and sustainability factors, ValuePoint 4 Default can deliver an REO value prediction that is more accurate than that provided by any standard AVM system.

For example, during the research and development of the ValuePoint 4 Default AVM, the development team considered using large-area geographic REO discounts. They determined that while these discounts are predictive, they do not address the more localized conditions that drive the magnitude of an observed property foreclosure discount. The discount will vary around the large area geography discount depending on property-specific conditions, such as the price tier of the property, whether it has been subject to any REO sales in the past, the functional obsolescence of the property and, most important, its condition. The discount will also vary based on the health and marketability of properties within the local market. If there are large inventories of REOs in the nearby area, then we expect discounts to be larger than in areas with low REO stock.

When we analyzed 85,000 REO sales throughout the country, we found that the typical amount of variation around the average discount for individual counties was 25 percent. In other words, in a county with an average foreclosure discount of 12 percent, for example, about two-thirds of the REO properties could reflect foreclosure discounts anywhere between 8 percent and 16 percent. ValuePoint 4 Default AVM is designed on the premise that the variation in the foreclosure discount is not randomly distributed, but is instead distributed non-randomly, based on property- and neighborhood-specific characteristics.

In Figure 1, a spatial surface interpolation technique is used to "fit" a surface through the observed property-specific discounts relative to market value for a sample of REO properties in Akron, Ohio. One can see that the discount is not constant across the city but clusters non-randomly through the geography. The underlying factors driving the reasons that one localized area experiences larger discounts relative to another are used in ValuePoint 4 Default to improve the estimation of the likely REO value.

Figure 1. Localized Variation in REO Discounts

ValuePoint 4 Default Underlying Methodologies

The following methodologies support the ValuePoint 4 Default model:

- The indexing methodology assumes that observed arm's-length transaction value is an accurate market representation of value. Using a geographically disaggregated house-price index allows us to update the observed arm's-length value for any market appreciation or depreciation between the date of the observed sale and the date of valuation. The internally developed index uses proprietary and repeat sales methodologies.

- Patented neural-net technology models complex relationships between numerous property characteristics, providing an adaptive approach to property valuation in changing market conditions.

- The hedonic methodology estimates the relationship between market values and the structural and location characteristics of the subject property based on characteristics of comparable properties.

- Combinations of the different methodologies are utilized, based on availability of the necessary data elements for a specific methodology. The results of the available methodologies are reconciled with relevant property specifics and market characteristics to determine a final prediction of the REO value.

Model Coverage

ValuePoint 4 Default uses a blend of public record deed and assessor records, where available, and includes numerous proprietary sources. The unique combination enables increased coverage where public sources are not available, including information in non-disclosure states. ValuePoint 4 Default draws on the nation's largest property and ownership database covering 98 percent of the U.S. population. The ValuePoint 4 Default core valuation footprint currently includes more than 770 counties, and will be expanded as accuracy-performance hurdles are met.

In addition to the core model, a distressed-house price index can be used to index a prior sale price or historical appraised value within the past two years to an estimated REO value. The distressed-house price indices are built on the same principles as the core model. Property appreciation is discounted relative to market appreciation due to property and local neighborhood conditions. Using the distressed-house price index in conjunction with the core model extends the model coverage to almost 100 percent, given the system can successfully vet the address and identify the property location with sufficient accuracy. The ValuePoint 4 Default AVM will apply the distressed-house price index, the core default AVM engine, or both, and reconcile them to determine a final default value conclusion.

Model Performance and Validation

The development team continuously tests the ValuePoint 4 Default model against REO data before it is available to the underlying databases in a 100 percent out-of-sample test. The team runs the model on these transaction addresses and generates value estimates. Next, they measure the error of each generated result. The team then calculates and reviews a variety of statistical performance measures to understand how the model is performing.

Using a sample of more than 20,000 REO sales, First American CoreLogic out-of-sample tested ValuePoint 4 Default against a traditional nationwide AVM, with the following results:

- The traditional AVM returned a value that was on average higher than the actual REO amount by 32.4 percent.

- ValuePoint 4 Default slightly overestimated the REO value by just 3.6 percent

- ValuePoint 4 Default had an overall percent prediction error within 10 percent of 41.4 percent, compared to 31.1 percent for a traditional AVM.

- The overall standard deviation (a measure that penalizes for large outliers) of ValuePoint 4 Default was 37 percent, compared to 65 percent from the traditional AVM, indicating a more controlled model with lower outlier risk.

Tables 1 and 2 show basic accuracy and hit-rate statistics on the REO sample by census region for both ValuePoint 4 Default and a traditional AVM. One can see that the performance range was at best almost 55 percent within 10 percent and at worst 32 percent within 10 percent for ValuePoint 4 Default, while the traditional AVM ranged from 58 percent to 19 percent within 10 percent. ValuePoint 4 Default also boasted a significantly reduced average error, ranging from 6.6 percent to 1.3 percent compared with the traditional AVM's 55.8 percent to 11.9 percent.

Table 1. ValuePoint 4 Default: Accuracy and Hit-Rate Statistics on REO Sample by Census Region

Census Region	Avg. Error	Std	% within 10%	# hits
ENC	6.49%	0.468	32.91%	3,856
ESC	4.19%	0.393	40.29%	1,539
MA	6.64%	0.533	29.59%	1,274
MNT	2.76%	0.260	50.80%	2,819
NE	4.09%	0.402	54.90%	102
PAC	1.97%	0.264	55.10%	1,207
SA	1.38%	0.289	42.42%	3,819
WNC	3.51%	0.375	38.81%	974
WSC	2.96%	0.337	41.98%	5,036

Table 2. Traditional AVM: Accuracy and Hit-Rate Statistics on REO Sample by Census Region

Census Region	Avg. Error	Std	% within 10%	# hits
ENC	53.45%	0.872	19.11%	3,856
ESC	35.65%	0.573	26.38%	1,539
MA	55.76%	0.992	20.25%	1,274
MNT	19.34%	0.329	36.18%	2,819
NE	17.49%	0.480	58.82%	102
PAC	11.85%	0.315	53.94%	1,207
SA	23.84%	0.420	33.33%	3,819
WNC	41.33%	0.743	27.31%	974
WSC	18.96%	0.407	39.44%	5,036

Model Maintenance

The ValuePoint 4 Default model is maintained as follows:

- Data Updating: We update the underlying public record and proprietary source data daily, as data is made available. The underlying premise of the data update procedures is to ensure that ValuePoint 4 Default has access to the most recent data available to make certain it is responding to market conditions as they are occurring.

- Minor Enhancements: The development team continuously looks for model enhancements and improvements, as well as methods for "scrubbing and cleaning" the underlying data. Minor enhancements that do not materially affect the overall model performance are not necessarily communicated at the time of the enhancement. Instead they are bundled and communicated within the quarterly validation reports. Minor enhancements are indicated by decimal increments of the product version numbers.

- Major Enhancements: Any time the development team makes a major model enhancement or a major data update occurs, such as the addition of significant new sources or coverage, we communicate to users at the time of the enhancement via email announcements. Major enhancements are indicated by integer increments of the product version numbers.

- Enhancement Testing and Validation: The development team statistically tests and verifies every enhancement based on the validation protocols described in the "Model Performance and Validation" section.

- Enhancement Implementation: After the development team completes testing and validation, the enhancements move to a QA/QC environment for additional testing and validation. Only after the enhancements have passed QA/QC testing, as well as a revalidation by the development team, is the enhancement migrated to the production environment.

Model Usage Methods

ValuePoint 4 Default is currently offered as a batch application with a three- to five-day turn time. Later this year, a real-time version of ValuePoint 4 Default will be made available with a variety of integration options (Web, batch, xml).

The validation of subject property and its condition in the context of the immediate neighborhood is the next important piece of information that can be added to the valuation equation. ValuePoint 4 Default is an important valuation building block with proven statistical reliability and substantial cost efficiencies over other, more traditional valuation methods.

For Further Discussion

For comments and further discussion please contact the authors.

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About First American CoreLogic

First American CoreLogic, a First American Corporation (NYSE: FAF), was formed through the merger of First American Real Estate Solutions and CoreLogic Systems. The combined companies' databases cover more than 2,900 counties, representing 99.1 percent of the United States population. With more than 600,000 users nationwide, First American CoreLogic products are used by businesses to improve customer acquisition and retention, detect and prevent fraud, improve mortgage transaction cycle time and cost efficiency, measure the value of residential and commercial properties, identify real estate trends and neighborhood characteristics, track market performance, and increase market share. For more information about First American CoreLogic, visit www.corelogic.com.

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