Minimizing Valuation Risk Using the Vector™ Rules Engine from CoreLogic®

A Strategic Overview

Jacqueline Doty
Vice President of Collateral Strategy
Confidential

The recipient of this document agrees that at all times and notwithstanding any other agreement or understanding, it will hold in strict confidence and not disclose the contents of this document to any third party and will use this document for no purpose other than evaluating or pursuing a business relationship with CoreLogic. No material herein may be reproduced, in whole or in part, by any means without the express written consent of CoreLogic. Unauthorized distribution is strictly prohibited.

The contents of this document are for informational purposes only, do not contain or convey legal advice, and should not be relied upon in regard to any particular facts or circumstances without first consulting an attorney or other knowledgeable expert.
Introduction

Automated valuation models (AVMs) play an essential role in the housing finance markets. Because of their speed, objectivity and lower cost, many lenders have incorporated AVMs into their property valuation processes. Compared to other valuation alternatives, AVMs can create efficiencies and improve risk management in origination, due diligence, and portfolio activities.

At first glance, setting up an AVM program appears straightforward. However, it can quickly become complex if manual processes are required to ensure that AVMs are precluded when their use is not appropriate. A well-designed risk-management platform can cut through this complexity by providing unprecedented control over AVM ordering and acceptance, reducing costs and avoiding errors. This paper will focus on how users can employ the Vector™ rules engine from CoreLogic® to manage AVM programs more effectively. The Vector rules engine (hereafter, simply “Vector”) provides a lender-managed infrastructure to automate the AVM selection process based on a lender’s credit and collateral underwriting policies, enhancing both risk management and mortgage fraud detection. Vector is available as an integrated component within most CoreLogic delivery platforms that provide AVM products.

Vector supports three types of rule sets that are each important in managing any AVM program.

Prescreening rules save time and money by avoiding an AVM call in circumstances where policies indicate that an AVM would not be an appropriate choice. AVM selection rules determine, for individual properties, which AVM (if any) is best suited to the valuation task at hand. AVM acceptance rules determine whether the AVM result returned meets the lender’s accuracy and loan requirements. With Vector, these three rule sets codify the policies set by risk management in a manner that is enforceable, consistent, auditable, transparent, and dynamic.
Strategic Overview ▶ Minimize Your Valuation Risk with Vector

Supporting AVM Cascades

Whether a lender uses a cascade or a single model, Vector offers a tailored solution for deploying risk strategies. To make the most of the unique strengths individual AVMs offer, though, many users prefer a cascade approach that ranks individual models according to relative performance. A well-designed AVM cascade ultimately delivers better accuracy and higher fulfillment rates than any individual AVM model can provide.

Vector enables access to the industry’s top AVMs and allows users to benefit from powerful decision logic and refined filters to help ensure compliance with federal guidelines. For example, users can configure Vector to follow prescreening rules that preclude an AVM for certain loan programs, property types, and high-risk loans. Risk managers can configure rules to select the appropriate AVM for a certain geographic area (state/county/FIPS code) based on a model’s performance within that area and other user preferences such as price tier. The rules engine then manages the cascading process using the AVM selection and AVM acceptance rules to progress through a hierarchy of individual AVMs until one model produces a sufficiently reliable result that meets the lender’s required confidence level or forecast standard deviation. AVM results that do not meet the acceptance rules can be automatically suppressed, helping to ensure adherence to lender’s policy requirements.

With Vector, risk managers can easily update the AVM cascade sequence if model performance changes. The rules engine ensures that any changes in AVM selection and usage policies are immediately instituted across the enterprise, a particular concern when lending programs change or model performance declines below acceptable levels.

1 The December 1, 2010 Interagency Appraisal and Evaluation Guidelines define the circumstances where alternatives to full appraisals are appropriate. Recognizing the widespread use of AVMs, the guidelines also require institutions to “establish internal confidence score minimums, or similar criteria, for when each model can be used” and “identify circumstances under which an AVM may not be used, including when a model’s performance is outside of specified tolerances for a particular geographic market or property price-tier range.”

2 The forecast standard deviation (FSD) denotes confidence in an AVM estimate and uses a consistent scale and meaning to generate a standardized confidence metric. The FSD is a statistic that measures the likely range or dispersion an AVM estimate will fall within, based on the consistency of the information available to the AVM at the time of estimation.
The diagram below illustrates a simple AVM cascade setup in Vector. In a more complex setup, the user may add other rules such as property type, credit grade, and loan amount. In addition, a user may add post-processing actions, such as ordering an appraisal or property condition report.

---

**Simple AVM Cascade Setup**

<table>
<thead>
<tr>
<th>State</th>
<th>County</th>
<th>Owner Estimated Value Range</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>Alameda</td>
<td>300K-400K</td>
<td>PASS, PowerBase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>401K-700K</td>
<td>PowerBase, PASS, VP4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All Estimated value</td>
<td>PASS, HPA, PowerBase, VP4</td>
</tr>
<tr>
<td></td>
<td>All (other)</td>
<td>400k-500k</td>
<td>HPA, PASS, VP4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>501k-900k</td>
<td>PASS, PowerBase, VP4</td>
</tr>
<tr>
<td>NY</td>
<td>Monroe</td>
<td>All Estimated value</td>
<td>PowerBase, PASS, VP4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All Estimated value</td>
<td>PASS, HPA, PowerBase, VP4</td>
</tr>
<tr>
<td>LA</td>
<td>Acadia</td>
<td>All Estimated value</td>
<td>PASS, PowerBase, VP4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All Estimated value</td>
<td>PASS, HPA, PowerBase, VP4</td>
</tr>
<tr>
<td></td>
<td>Avoyelles</td>
<td>All Estimated value</td>
<td>PASS, PowerBase, VP4</td>
</tr>
</tbody>
</table>

---
Managing AVM Use by Property Type

Most AVM cascades are intended for use on single-family detached and attached properties, condominiums, co-ops, and planned-unit developments – the primary property types that AVMs are designed to value with the greatest accuracy. Because certain AVMs have difficulty valuing commercial, manufactured housing, and multifamily properties accurately, risk managers typically exclude these property types from AVM use. Vector can manage these policy requirements by running prescreening rules that prevent AVM use for valuing ineligible properties.

In addition to setting up prescreening rules to exclude certain property types, a risk manager may use AVM selection rules to run AVM cascades by property type. For example, the risk manager may designate one cascade for single-family residences (SFR) and another for condominiums and townhomes.

Vector can manage the workflow by property type, as depicted in the diagram below.

![Property Type Cascade Workflow Diagram]
Prescreening for Properties in Natural Disaster Areas

The Interagency Appraisal and Evaluation Guidelines state that institutions must “identify circumstances under which an AVM may not be used, including … the aftermath of a natural disaster…” The rules engine accesses a current list of affected areas from the Federal Emergency Management Administration (FEMA) and allows administrators to set up prescreening rules to run against this list. Vector can restrict users from ordering AVMs when they enter an address located in those counties or parishes, saving money and preventing reliance on an AVM for properties that may have been negatively impacted in the aftermath of a natural disaster.

Precluding Value Shopping

The mortgage industry has struggled to devise and enforce rules that prevent originators from value shopping while still allowing the use of multiple AVMs. “Value shopping” is a method of using a cascade to evaluate collateral by running multiple AVMs and choosing the value that minimizes loan-to-value ratios and maximizes loan completions. Another variation of value shopping is to request models sequentially in the cascade until the resulting AVM value is sufficient to support a targeted value needed to complete a particular loan transaction. These value-shopping techniques do not provide an unbiased and impartial estimate of fair market value and generally result in systematic overvaluation. More important, value shopping exposes financial institutions to unnecessary credit risk. Because of these concerns, the Interagency Appraisal and Evaluation Guidelines require institutions to “implement controls to preclude ‘value shopping’ when more than one AVM is used for the same property.”

Vector allows risk managers to enforce rules that preclude value shopping. When using an AVM cascade, Vector can stop the cascade from requesting any additional results once a value is returned. In other words, the administrator can create a stopping rule in Vector that terminates the cascade as soon as an AVM generates a hit, so that only one value is returned to the user.

Even if multiple AVM values were returned on a property, prudent risk management would base the loan decision on the most reliable valuation. Reliability can be determined based on a confidence score or by utilizing the most accurate AVM, as defined by the ability to target fair-market value. Using Vector, risk managers can apply this more refined approach by defining a “useable hit” as an AVM result that meets additional objective accuracy criteria, such as a minimum confidence score. In this scenario, the stopping rule returns a value to the user as soon as the system identifies the first AVM result that is a “useable hit.”

Vector’s methods of precluding value shopping help to ensure that AVM results are returned unbiased and independent of any value necessary to complete a loan transaction.
Avoiding Fraud

Fraudulent property transactions often appear as regular arm's-length transactions in public record source data and can pollute the data that feeds into AVMs. The Interagency Appraisal and Evaluation Guidelines state that “in areas that have experienced a high incidence of fraud, the institution should consider whether the AVM may be relied upon for the transaction or another valuation method should be used.” For these reasons, risk managers often use collateral risk and fraud scores in combination with AVMs in the underwriting process. The diagram below depicts a typical Vector-supported underwriting workflow that uses a prescreening rule based on the LoanSafe Collateral Manager™ score to preclude AVM use on high-risk loans.
Chaining Cascades

Vector also supports chaining cascades, a feature that allows lenders to manage and optimize AVM process workflows. The concept is to apply threshold “A” at the beginning of a sequence and threshold “B” to the same AVM further down the chain. The value from the first AVM run is cached in memory so that subsequent thresholds can be applied down the chain. Since the AVM is run only once, the chaining feature eliminates additional charges and reduces manual batch processing. In the diagram below, the cascade uses the chaining feature for the PASS® AVM.

<table>
<thead>
<tr>
<th>ORDER</th>
<th>AVM</th>
<th>FSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PASS</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>VP4</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>PASS</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>PB6</td>
<td>13</td>
</tr>
</tbody>
</table>

Property Condition Reports

The Interagency Appraisal and Evaluation Guidelines state that when using AVMs for lending purposes, institutions must “address the extent to which an inspection or research is necessary to ascertain the property’s actual physical condition.” Because of this requirement, lenders using an AVM in lieu of an appraisal for a lending decision must generally obtain a property condition report. Vector automates risk and valuation workflows with real-time rules management and can be set up to obtain the AVM first and, if the AVM is successful, automatically order an OnSite™ property inspection report from CoreLogic. If the AVM is not successful, Vector can save expenses by not ordering the property inspection report.

Audit Trails and Accurate Billing

No risk mitigation service is complete without including a robust audit trail along with monitoring and reporting functionality. Combined, these features maintain security, ensure that the AVM program is performing according to expectations, and verify billing accuracy. Vector allows authorized users to change rules easily, but also maintains an audit trail of who made those changes and when they were made. Monitoring and reporting features allow users to create custom reports to reconcile AVM usage, evaluate cascade performance, and support process controls.
Conclusion

Vector incorporates a best-of-breed approach by offering a stable, secure, out-of-the-box decisioning infrastructure, with highly configurable components and applications. Depending on delivery platform options and configuration, Vector can also provide access to its Web-based user interface with real-time self-management of rules, administrative functions, and applications. This self-service element allows lenders to change the AVM “rules of engagement” without a call to a technical department or platform provider. Adding or deleting AVMs and other routine modifications to the collateral risk management process are carried out quickly and easily—with an automatic audit trail to substantiate compliance.

Since it is much harder to switch out a collateral risk management platform than an individual AVM, careful consideration should be given when identifying the best platform for your long-term needs—particularly with regard to the processing logic within that platform that controls workflow and decisioning. The Vector rules engine from CoreLogic offers a flexible, intelligent, and secure risk-management tool that allows collateral risk managers to set up AVM prescreening, selection, and acceptance rules to manage collateral policies, detect fraud, enforce underwriting rules, and assess loan quality in seconds—significantly reducing costs and process times.

Jacqueline Doty

Jacqueline Doty is the vice president of collateral strategy at CoreLogic, a leading provider of consumer, financial and property information, analytics, and services to business and government. Ms. Doty and other thought leaders at CoreLogic have published a number of in-depth white papers on the topic of AVM testing and applicable regulations. She can be reached at 703-610-5415 or jdoty@corelogic.com.
About CoreLogic

CoreLogic (NYSE: CLGX) is a leading provider of consumer, financial and property information, analytics and services to business and government. The Company combines public, contributory and proprietary data to develop predictive decision analytics and provide business services that bring dynamic insight and transparency to the markets it serves. CoreLogic has built one of the largest and most comprehensive U.S. real estate, mortgage application, fraud, and loan performance databases and is a recognized leading provider of mortgage and automotive credit reporting, property tax, valuation, flood determination, and geospatial analytics and services. More than one million users rely on CoreLogic to assess risk, support underwriting, investment and marketing decisions, prevent fraud, and improve business performance in their daily operations. The Company, headquartered in Santa Ana, Calif., has approximately 5,000 employees globally. For more information visit www.corelogic.com.