

WHITE PAPER



Veros Real Estate Solutions: Process for Model Valuation

by William E. King
Director, Valuation Services
Veros Real Estate Solutions

Outlined in this document is the process by which Veros Real Estate Solutions (Veros) conducts its model validation for all automated valuation and risk models. This process mirrors regulatory guidance from the office of Comptroller of the Currency, specifically OCC Bulletin 2000-16, and most recently, the Interagency Appraisal and Evaluation Guidelines published in December of 2010. All of Veros' computer-based financial models are validated and tested on an ongoing basis, a process we would undertake regardless of regulatory requirements in order to achieve optimum performance for all of our clients.

Our model validation process looks at each component independently, including the information, processing and reporting component, validating each separately.

Model Validation Procedures

There are three generic procedures applicable in validating a model: (a) independent review of logical and conceptual soundness, (b) comparison against other models, and (c) comparison of model predictions against subsequent actual events.

Veros applies all three procedures in our validation process. We pay particular attention to the comparison of our model predictions against what happens in the marketplace subsequently as the best overall test of model quality.

The elements of a sound validation policy typically include five elements:

1. Independent Review
2. Defined Responsibility
3. Model Documentation
4. Ongoing Validation
5. Audit Oversight

Independent Review

Veros participates in independent third-party AVM testing on no less than a monthly basis (and, customarily more frequently). These tests are conducted by potential clients, existing clients and strategic risk mitigation vendors. Test results are communicated directly to senior management at Veros.

Defined Responsibility

Model validation is performed following specific written procedures which include periodic external review. Both internal and external processes and responsibilities are reviewed and approved by senior management before models are put into production.

Model Documentation

Every aspect of model development, testing, and oversight responsibility is thoroughly documented internally. Veros has specific training materials and a procedure for qualifying individuals to participate at any level in the modeling process. A complete history detailing the evolution of our models and all model testing results is securely maintained.

Ongoing Validation

As our models evolve over time, each improvement is documented and independently reviewed. All assumptions used in the models are tested against market data and those results are documented and retained. Veros also maintains rigorous change control procedures so that only authorized personnel can be involved in any changes.

Additionally, Veros utilizes internally developed “due diligence” software tools to validate results and highlight issues that may require attention. This software assesses performance across several points of measurement including confidence score, median absolute error, forecasted standard deviation and others.

Audit Oversight

Veros is subject to a variety of audits due to the nature of our business relationships with regulated institutions and government-controlled entities. Our internal and external audits are extensive and affirm our commitment to the highest possible standards. Veros has completed SAS 70 Type II Certification and is undergoing FISMA audits covering a wide variety of areas including access controls, system and information security and integrity.

Validating Model Inputs**Data**

Veros incorporates data from both internal and external sources in its valuation models. All data input include extensive quality control procedures for detecting errors and review of data input procedures by appropriately qualified personnel.

Assumptions

Veros' automated valuation models rely on very few assumptions that are not otherwise also independently tested and validated. Assumptions used to qualify valuation outputs are tested both independently, and against the local markets in which the assumptions are being used.

Validating Model Processing

Code and Mathematics

Code and mathematical components are tested through benchmark models. These benchmark models, whether internal or external, are used to identify discrepancies between outputs. Judgment can then be applied to isolate whether any discrepancies are the result of input differences or processing errors. When discrepancies are found the causes are isolated and addressed.

Theory

Veros models have been constructed by individuals with highly advanced education and experience in statistics, mathematics, engineering, real estate valuation and economics resulting in the application of sound and reliable statistical and economic theories.

Model Reports

Validating Model Results

Veros automated valuation model outputs are compared against the results of other models, actual market prices and other benchmarks such as manual appraisals. Internally, model results are compared against recent out-of-sample data (i.e. data that has not yet been introduced to the models or production data) to accurately and contemporaneously identify model or geographic weakness.

Veros has the benefit of a history of model validation against actual market results (back-testing) over a period of many years. Validation at this level has proven the soundness of our models and has been sustained through wide market changes.

Validating the Context of Reports

Executive summaries of all aspects of Veros' model documentation policies and procedures are delivered to senior management on a regular basis.

Conclusion

Veros automated valuation models and predictive analytics are routinely subjected to rigorous testing and validation, both internally and by various third parties, including clients and risk mitigation vendors. Veros was a founding member of the Collateral Assessment & Technology Committee (CATC) of the Real Estate Information Professionals Association in 2004 and remains actively involved in the organization and to the pursuit of transparent and objective evaluation, implementation and application of automated real estate analytics.

The above reflects Veros Real Estate Solutions (Veros) internal automated valuation model (AVM) validation and due diligence procedures. Veros reserves the right to alter its procedures at any time. Veros does not warrant its AVM results or validation and due diligence procedures. Clients are advised to conduct their own AVM validation and due diligence and not simply to rely on the procedures of their AVM providers.