a higher level of confidence

VantageScore 2.0 Validation

Introduction

In April 2011, the Office of the Comptroller of the Currency (OCC) expanded long-standing guidelines titled, "Supervisory Guidance on Model Risk Management"[1]. The OCC issued these guidelines in response to the banking industry's increasing reliance on modeling and analytics to drive decision-making. The guidelines provide an invaluable road map that allows lenders to develop a robust model validation philosophy and to function within their institution.

To assist lending institutions in this effort and to provide model transparency, VantageScore Solutions annually conducts validations on all of its models and releases the results publicly.

VantageScore 2.0 was validated on the June 2011 to June 2013 time period, which provides a fresh examination of how the model performs in a more current credit environment. The methodology used, mirrored the methodology used at the time of model development and all prior validations. A validation overview and model performance detail is provided in this paper.

Contents

[1] Board of Governors of the Federal Reserve System, Office of the Comptroller of the Currency, Supervisory Guidance on Model Risk Management, April 4, 2011: http://www.occ.treas.gov/news-issuances/bulletins/2011/bulletin-2011-12a.pdf.

June 2011-2013 Revalidation Overview

- VantageScore 2.0 outperformed the benchmark model[2] for all industries in Account Management[3] activities by an average of 2.6%.
- VantageScore 2.0 outperformed the benchmark model in Originations[4] in Real Estate, Auto and Credit Union categories; in all other industries, performance was on par with the benchmark model.
- Score consistency between the three national credit reporting companies (CRCs)—Equifax, Experian and TransUnion—is maintained.
- Continued strong rank ordering for all economic quadrants.
- Overall risk levels were reduced in all major industries, with the exception of a slight increase in default rates in Auto Originations.
- Consumer score distributions reflect improving consumer performance.

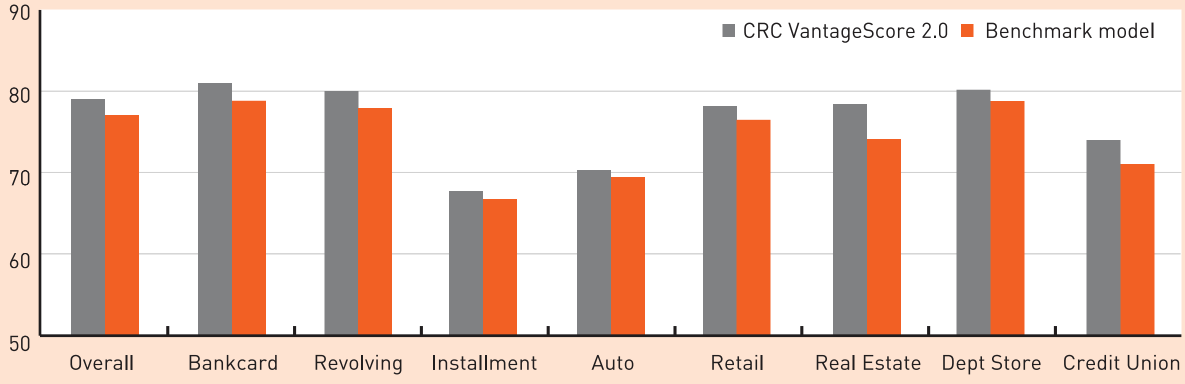
[2] The benchmark model was a proprietary generic risk model provided by one of the three national credit reporting companies (CRCs).
[3] Account management: Accounts that are at least two years old at the time of performance measurement.
[4] Originations: Accounts that were opened within the 3 months prior to the time of performance measurement.

Model Performance

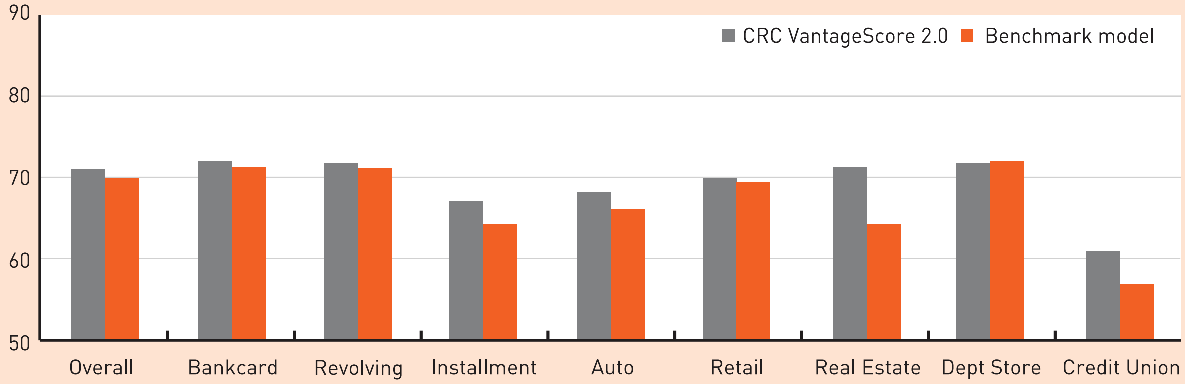
It is common for credit scoring models to be measured using a Gini value. For a credit score, the Gini coefficient compares the distribution of defaulting consumers with the distribution of non-defaulting consumers across the credit score range. The coefficient has a value of 0 to 100. A value of 0 indicates that defaulting consumers are equally distributed across the entire credit score range, in other words, the credit score fails to assign more defaulting consumers to lower credit scores. A coefficient value of 100 indicates that the credit score has successfully assigned all defaulting consumers to the lowest score possible. A Gini coefficient above 45 is a good result.

The VantageScore 2.0 model continues to have a Gini value higher than the benchmark model across nearly all credit products for both Originations and Account Management functions.

Account Management Gini values: VantageScore 2.0 compared to benchmark model



Originations Gini values: VantageScore 2.0 compared to benchmark model

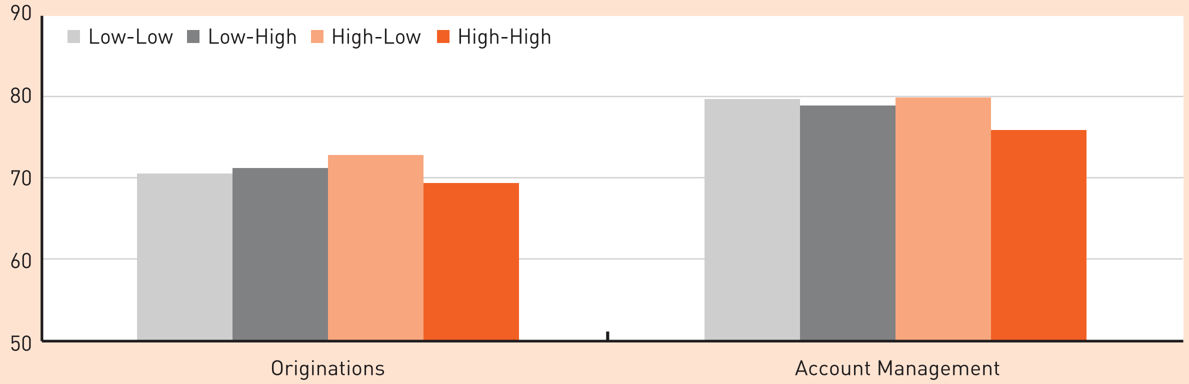


Performance Across Economic Quadrants

The Great Recession and subsequent recovery had varying degrees of impact in different regions across the country. Consumer credit behaviors also trended differently. Risk managers need confidence that the credit score model used retains its predictiveness regardless of how economic conditions vary.

The predictive strength of the VantageScore 2.0 model was tested in regions where the employment and home price depreciation rates differed and the model delivers strong predictive strength for all economic quadrants, as demonstrated with Gini values exceeding 69 for originations and 76 for account management in the graph below.

Economic Quadrants: Gini Results



Home Price Depreciations	Unemployment: High (>9.5%)	Unemployment: Low (<9.5%)
High (>15%)	**H-H**	**H-L**
Low (<15%)	**L-H**	**L-L**

High—High: Consumers who live in states where unemployment is greater than 9.5% and home price depreciation is greater than 15%

High—Low: Consumers who live in states where unemployment is greater than 9.5% and home price depreciation is lower than 9.5%

Low—High: Consumers who live in states where unemployment is lower than 9.5% and home price depreciation is greater than 9.5%

Low—Low: Consumers who live in states where unemployment is lower than 9.5% and home price depreciation is lower than 9.5%

Consistency

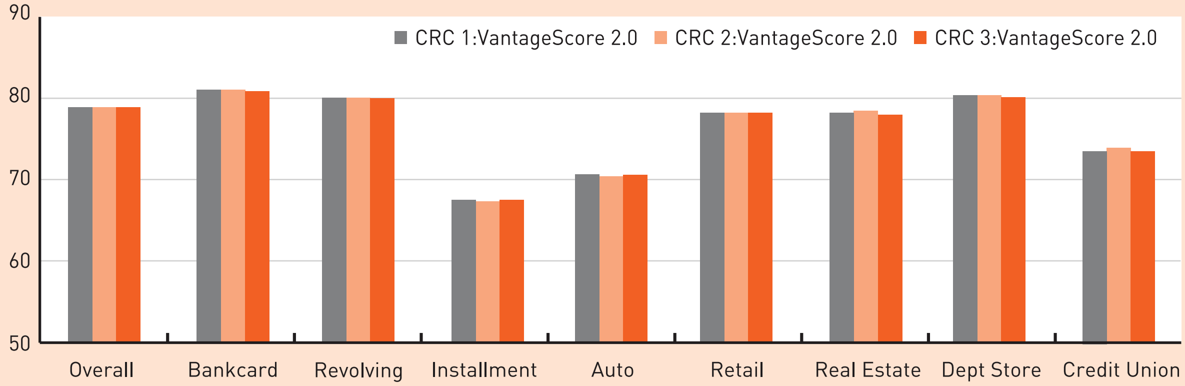
Often the credit file data for a specific consumer can vary slightly due to data being reported at different times to the three CRCs and because of variations in the ways in which CRCs define and store the data. This can result in consumers receiving different credit scores from different CRCs.

One of the hallmarks of the VantageScore model is its patented characteristic leveling process which yields consistent and equitable data definitions across multiple sources of information. Simply put, this ensures that when the same data is present in multiple sources it is interpreted the same way, even though there still may be differences in how the data is defined. Consequently, the consumer credit scores are more tightly aligned.

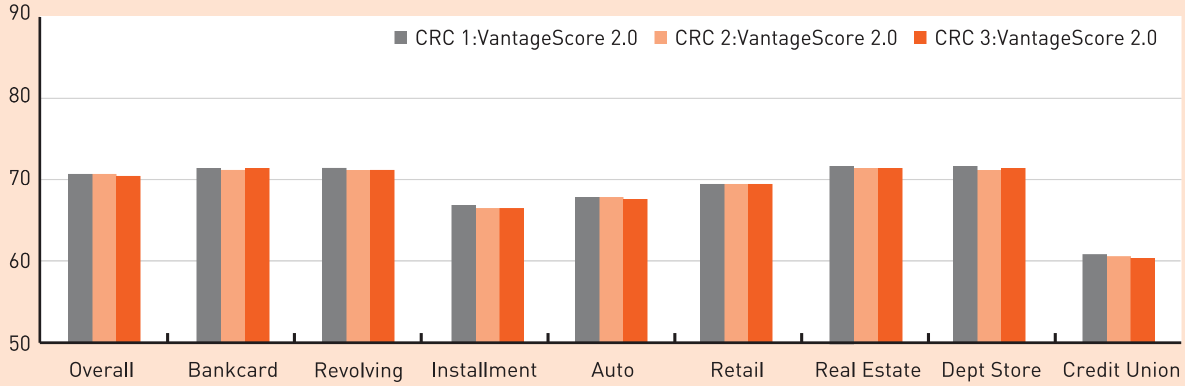
For lenders, a model that levels credit behavior data definitions creates a more consistent picture of a consumer's credit payment behavior across the three national CRCs, regardless of which CRC provides the data.

Performance Consistency VantageScore 2.0 Gini results among the three CRCs remain highly consistent.

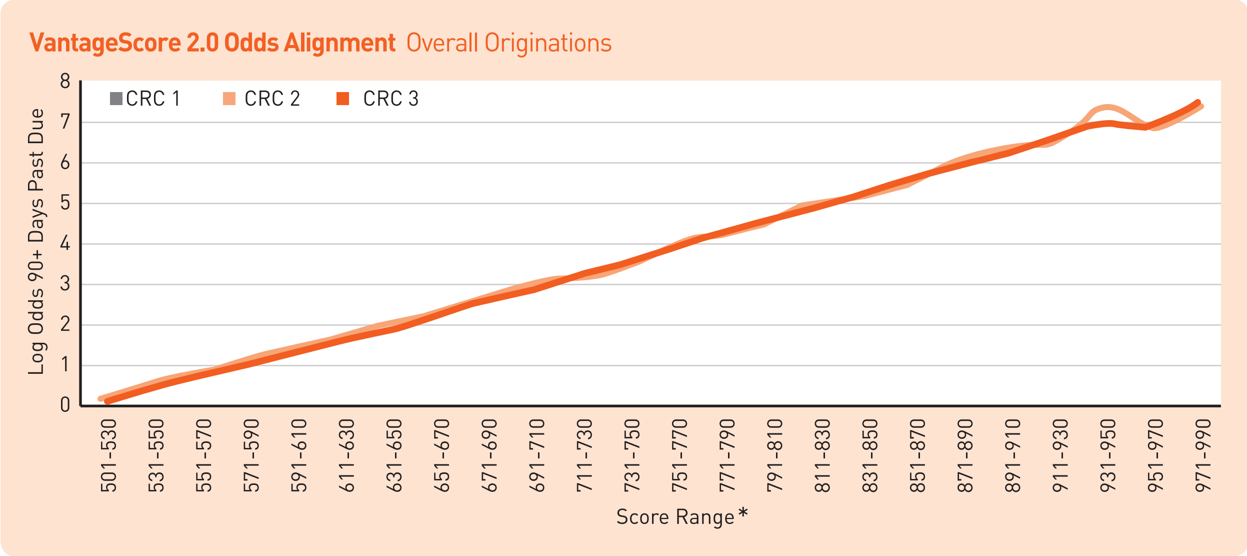
Account Management VantageScore 2.0 Gini values



Originations VantageScore 2.0 Gini values



Risk Consistency The score to risk level relationship (90+days past due) is consistent across all CRCs.



* The VantageScore 2.0 scale ranges from 501-990.

Consumer Score Consistency Consumer score consistency between CRCs also remains strong. The table below shows that between 63% - 71% of accounts have a difference of less than 20 points between two CRCs, and 83% or more have differences of less than 40 points.[5]

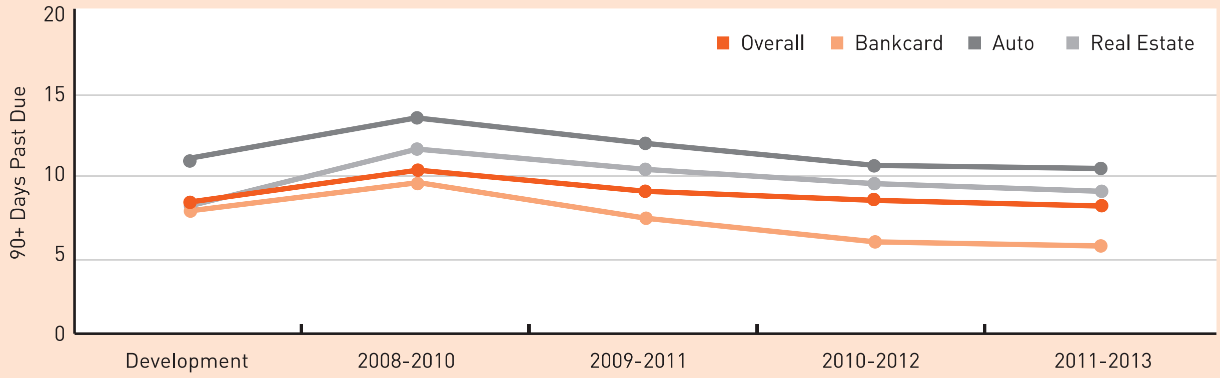
Cumulative Percent of Population

	CRC1 - CRC2	CRC2 - CRC3	CRC1 - CRC3
< 20 Points	62.52%	62.96%	71.26%
< 40 Points	82.87%	82.97%	88.39%
< 60 Points	91.53%	91.55%	94.74%

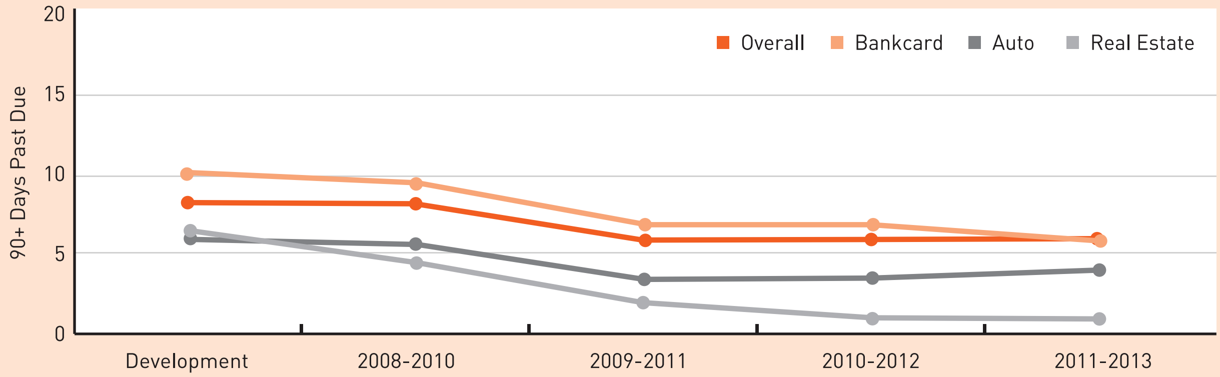
[5] Every 40 points on the VantageScore scale represents a doubling (or halving) of the odds.

Systemic Risk Levels and Consumer Score Distributions Compared with prior years, default rates have maintained similar levels or improved for all major industries for both originations and account management, with the exception of Auto originations, where a slight increase in default rates is observed.

Account Management: 90+ Days Past Due Rates



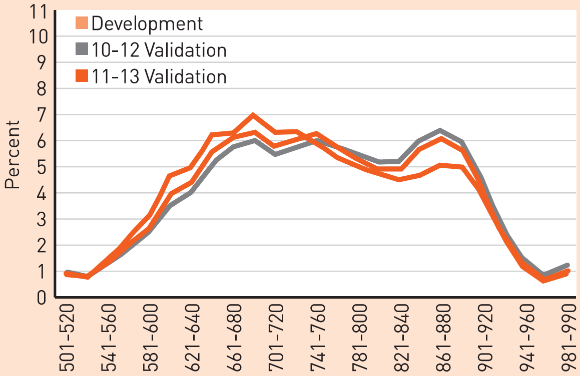
Originations: 90+ Days Past Due Rates



Consumer score distributions for Overall, Real Estate, Bankcard, and Auto segments reflect the observed shifts in economic conditions.

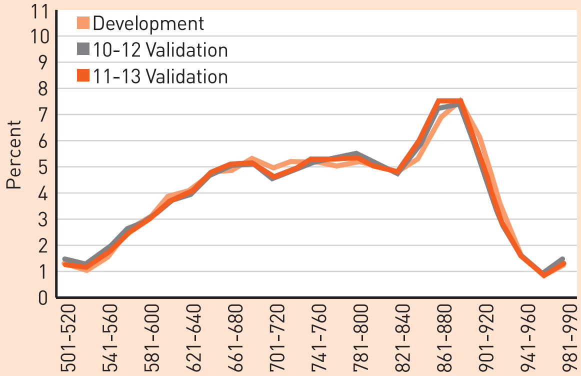
Originations

VantageScore 2.0 Score Distribution: Overall



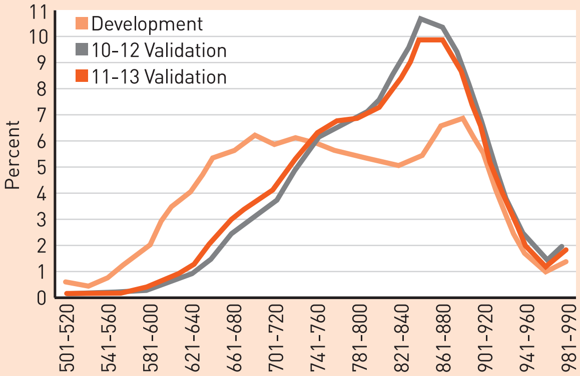
Account Management

VantageScore 2.0 Score Distribution: Overall



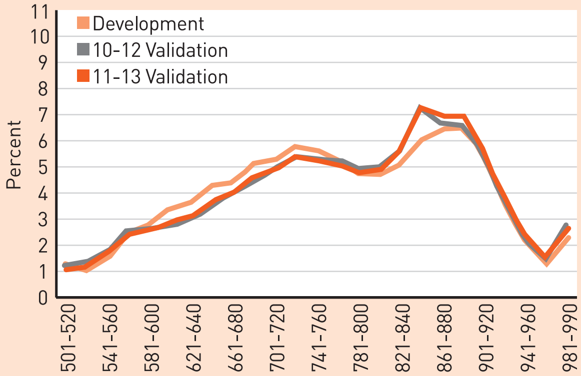
Originations

VantageScore 2.0 Score Distribution: Real Estate



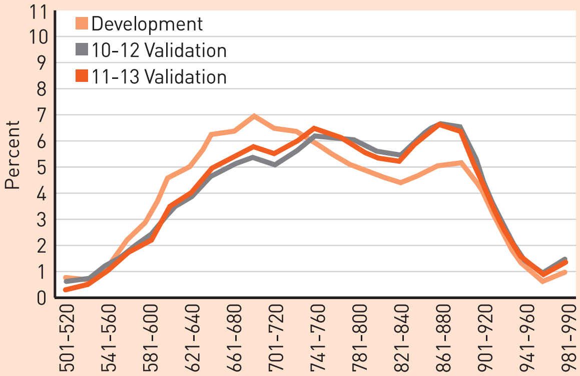
Account Management

VantageScore 2.0 Score Distribution: Real Estate



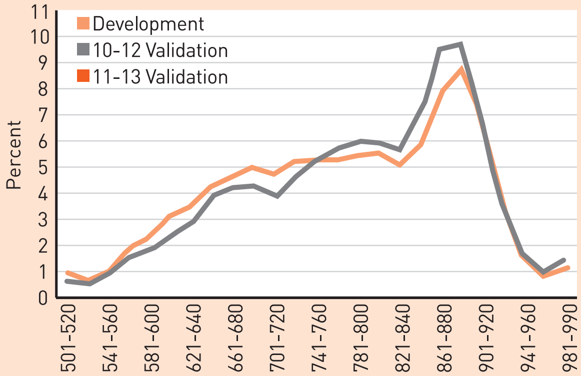
Originations

VantageScore 2.0 Score Distribution: Bankcard



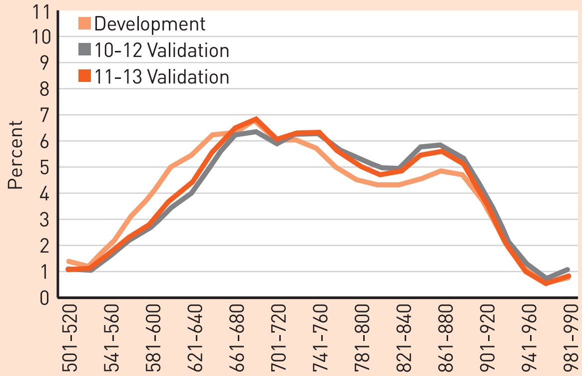
Account Management

VantageScore 2.0 Score Distribution: Bankcard



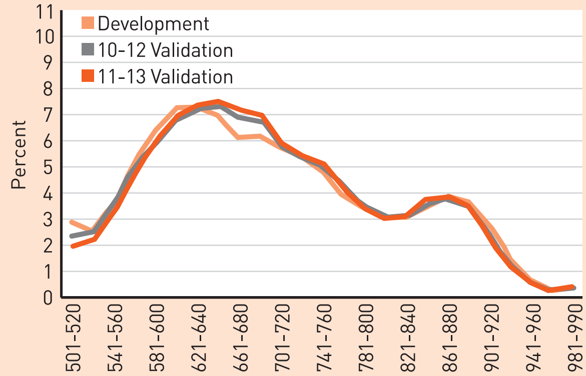
Originations

VantageScore 2.0 Score Distribution: Auto



Account Management

VantageScore 2.0 Score Distribution: Auto



Conclusion

It is imperative that credit score models provide the highest level of accuracy to enable lenders to have confidence in their decisioning. Moreover, when a credit score model loses predictiveness and loss ratios are impacted, additional costs may be passed on to the consumer. When models are working at peak performance levels, it is the proverbial win-win.

The validation of VantageScore 2.0 demonstrates that the model remains highly accurate, consistent, and stable across all major credit categories, and when examined geographically.

Further reading about validation procedures and best practices is available on the VantageScore website, including white papers focused on validating a credit score model in conjunction with additional underwriting criteria, and executing effective validations in a more generic environment.

The VantageScore credit score model can be found throuhg any of the three major Credit Reporting (CRCs) —Equifax, Experian and TransUnion— who each, in turn, market the credit scores. Lenders and other commercial entities interested in learning more about the VantageScore models may contact one of the following CRCs listed at the right for additional assistance.

EQUIFAX

Call 1-888-202-4025

Visit www.equifax.com/vantagescore

Experian

Call 1-888-414-1120

Visit www.experian.com/consumer-information/vantagescore-lenders.html

TransUnion

Call 1-866-922-2100

Visit www.transunion.com/corporate/business/solutions/financialservices/bank_acq_vantage-score.page