



# Credit Scoring In Volatile Times



**At** the heart of the current economic downturn are the methods financial institutions are employing to properly align risk with their business strategies.

A recent web seminar was conducted by VantageScore Solutions, in conjunction with American Banker, to explore issues around best practices with credit scoring, credit quality deterioration, practices to improve the use of credit score modeling as well as some of the economic realities facing participants in both the prime and subprime markets. Below is a brief synopsis of the web seminar. The full seminar is available online at: [www.VantageScore.com/research](http://www.VantageScore.com/research)

Conducting the seminar was Sarah Davies, Senior Vice President of Analytics and Product Management with VantageScore Solutions, a company launched by the three major national credit reporting companies (CRCs), Equifax, Experian and TransUnion. VantageScore Solutions provides credit grantors with a highly predictive credit score model that is based on a single algorithm across all three bureaus and enables scoring of more consumers. In addition to her product development work, Ms. Davies is chiefly responsible for research and analysis regarding the effects and impact of credit scores as well as the annual revalidation of the algorithm underlying the VantageScore model.

There has been much conversation about how credit scoring has or has not contributed to the current financial crises. The underlying mathematical technology for credit scoring is based on a foundation that prior year consumer behavior is predictive of behavior in forthcoming years. So, when the question becomes, 'Are behavioral models still effective?,' it's a much more relevant question when we see consumer default levels rise and consumer behavior change dramatically as in the last four to five years.

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**The web seminar answers four primary questions:**

1. How have increased consumer defaults impacted credit scores?
2. Are credit scores still performing?
3. Is a credit score still rank ordering?
4. What tests are used to determine whether credit score rank ordering is effective or not?

We'll use statistics from VantageScore throughout this discussion. For those not familiar, VantageScore is a consumer credit risk score, indicating the likelihood that a consumer will become 90 days or more past due on an account over a two-year timeframe. The score range is 501-990 and it was developed by the three CRCs using data from the 2003-2005 timeframe and released to the marketplace in 2006.

The same algorithm is in place at all three CRCs, so we've reduced the variability associated with different algorithms. There is one universal version. We do not have multiple versions available in the marketplace, so when you're using VantageScore you're using the same tool and you're getting the same insights that everybody else is getting.

Importantly, because VantageScore was built under more recent economic conditions, the product diversity that has been seen in the marketplace the last few years was captured in the calibration and design of VantageScore. Additionally, the score was designed with 12 specific scorecards to really capture some very different consumer populations. We have scorecards built specifically for previous bankruptcy, for thin file and a whole range of risk tiers within a full file profile. This segmentation captures and separates consumers who perform differently from one another. For example, there are scorecards for those who typically behave in a very high quality fashion, always paying their debts, and other scorecards exist especially for those consumers who are often in default or highly delinquent on many of their tradelines. The whole point is that we're trying to segment homogeneous populations and to build rank ordering capabilities for those populations with greater accuracy, greater predictive performance.

**Rank Ordering**

The role of a credit score is to rank order a pool of consumers for lenders, identifying high-quality credit risk consumers from low-quality credit risk consumers, ultimately identifying increasing levels of risk. To analyze rank ordering, we've taken a national sample of consumers, scored them using VantageScore and then rank ordered those consumers by their scores, grouping them into ten-percent tiers and calculating default rates (See Figure 1). A consumer is considered to be "in default" when one or more of their credit accounts becomes 90 days or more past due.

In the rank order table, Decile 1 is the tier with the highest quality consumers, representing the best scores. We found that 0.14 percent of consumers in Decile 1 were in default status. The worst scores appear in Decile 10, demonstrating that 39.62 percent of individuals ranked here were in default on at least one account. If a score is properly rank ordering, it is said to be performing effectively. This is demonstrated by interval default rates that increase with each decile, as in this example. We found Decile 2 is 0.18 percent, Decile 3 is 0.29 percent, and so on. Those default rates should continue to monotonically increase as the score goes down. When risk rates are not monotonically increasing, then the score is actually breaking down by failing to rank order. This creates risk exposure because it's not helping lenders gauge the risk that they're bringing into the portfolio. In this example of VantageScore, the score is doing a good job of rank ordering in terms of identifying very good consumers at the top end of the score range and very poor consumers, defaulting consumers, at the bottom end of the score range.

The cumulative side of this table shows the risk on the portfolio as the universe expands. The entire risk level is 7.66 percent for the full portfolio, but just 0.14 percent for just the first decile, 0.16 percent for the top two deciles, and so forth.

Credit scoring companies provide 'performance' or odds charts to lenders. (See Figure 2). Typically these charts delineate consumers based on score ranges. In our example, the score range of 501 to 530 has a 90+ interval rate of 47.23 percent, meaning almost one in two consumers will default. In the 931 to 950 range, the interval rate is 0.25 percent.

Lenders should be requesting updates to these tables from their score providers on an annual basis, which provides the greatest transparency of systemic risk.

**Figure 1 90+ Days Past Due Rates ACCOUNT MANAGEMENT**

Decile	Interval	Cumulative
1	0.14%	0.14%
2	0.18%	0.16%
3	0.29%	0.20%
4	0.57%	0.30%
5	1.16%	0.47%
6	2.40%	0.79%
7	4.80%	1.36%
8	9.37%	2.36%
9	18.06%	4.11%
10	39.62%	7.66%

**Figure 2 ACCOUNTS ORIGINATION—PERFORMANCE WINDOW**

Industry: Overall  
 Region: U.S.  
 Industry: Overall  
 Report: 20 Points-Breaks

SCORE RANGE	90+ RATE Cumulative	90+ RATE Interval	Good/Bad Odds
501-530	7.58%	47.23%	12
531-550	7.10%	39.65%	13
551-570	6.76%	34.22%	14
571-590	6.27%	28.65%	15
591-610	5.68%	23.93%	17
611-630	5.02%	19.64%	19
631-650	4.33%	15.82%	22
651-670	3.65%	12.68%	26
671-690	3.00%	9.45%	32
691-710	2.42%	7.56%	40
711-730	1.92%	5.79%	51
731-750	1.54%	4.50%	64
751-770	1.19%	3.23%	83
771-790	0.96%	2.55%	103
791-810	0.78%	1.92%	128
811-830	0.63%	1.42%	158
831-850	0.51%	0.99%	195
851-870	0.42%	0.72%	236
871-890	0.35%	0.51%	285
891-910	0.30%	0.39%	333
911-930	0.26%	0.27%	383
931-950	0.26%	0.25%	389
951-999	0.25%	0.25%	399

Relevant for today's volatile economy is reviewing the overall risk profile over a span of several years, which can provide important insights.

In looking at the June 2003 to June 2005 data in Figure 3, the risk profile for new accounts is a little over four percent. Risk levels increased to over five percent for the 2005 to 2007 timeframe. But in the higher quality range, 790 and above, there is still extremely low risk, with almost identical default rates for the first three time periods, as can be observed because these three risk profiles overlap at this end of the range.

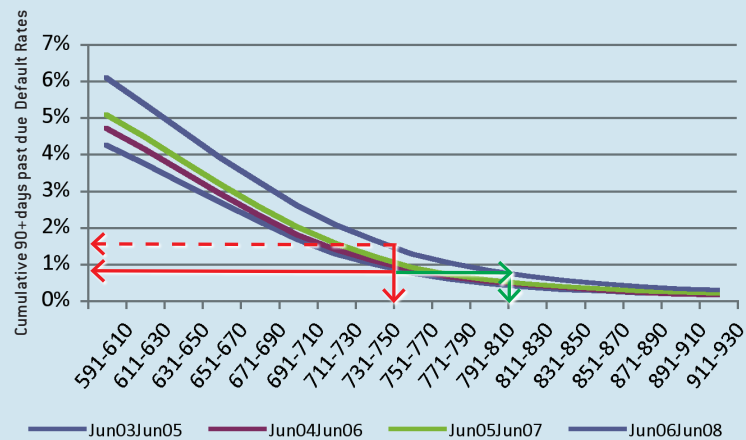
The June 2006 to 2008 line on the graph represents a very different picture, reflecting incremental risk in the overall population to above six percent. Importantly, risk has increased across every score tier, spreading from

sub-prime into super-prime. This is clearly a significant issue as lenders look to ensure that their scores are capturing systemic risk as they originate new loans.

For example, lenders that set their cutoff at 750 back in the first time period of June 2003 to June 2005 were setting their strategies to originate loans such that their overall portfolio risk was approximately 0.8 percent. If lenders had not taken action to increase score cutoffs based on indicators from updated performance charts, but instead had kept their score cutoff at 750, they would now be originating loans that increased overall portfolio risk to approximately 1.6 percent, or a doubling of risk. To maintain the same risk profile, score cutoffs would have to increase to approximately 810, as shown by the green arrows in Figure 3. It's especially important during these kinds of economic environments that lenders need to be diligent in reviewing score performance and executing appropriate shifts to lending strategies.

**Figure 3 New Accounts — 90+ Days Past Due Odds: ALL INDUSTRIES**

Increased consumer defaults drove a substantive change in the risk profile in 2006-2008 for all industry segments, increasing from just over 4% in 2003-2005 time period.



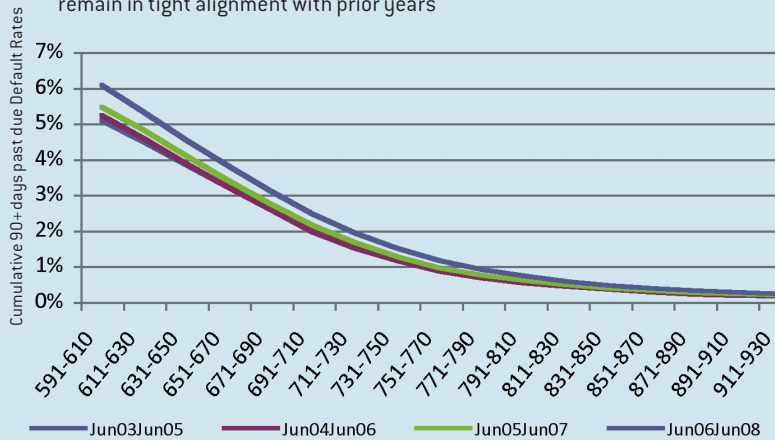
*Are you experiencing credit-quality deterioration within your portfolio? More than 75% of audience members are experiencing some deterioration, and more than 14% say there is significant deterioration.*

With those results, the question then becomes, 'where is the risk coming from and can lenders still use their existing risk tools or do lenders need to improve them'? To help answer that question, we can review credit score performance with originations across all industry segments. CONTINUED ON BACK

The graph endorsed in Figure 3 demonstrates that the overall risk level for everything from auto loans to credit cards and mortgages has increased two percentage points, from just over four percent to a little over six percent.

**Figure 4 New Accounts — 90+ Days Past Due Odds: NON REAL ESTATE**

Removing defaults due to real estate shows consumer default levels remain in tight alignment with prior years



We wanted to determine how much of this risk increase was being driven by real estate, so the real estate accounts were removed from all four timeframes in the risk profile analysis.

The new results, depicted in Figure 4, show just a one percent separation in portfolio risk levels – from five percent to six percent between the earliest and the most recent time period, observed with the much tighter alignment between the four years in the graph. These results indicate that real estate deterioration is driving one percentage point of the overall deterioration.

Now that we've shown systemic risk over the last four years, let's get back to what scores are designed to do – rank order consumers within a portfolio.

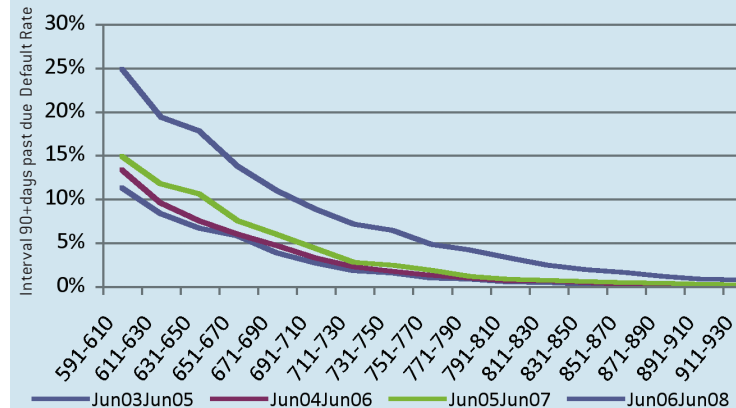
To really stress test the credit score, performance was reviewed for new real estate accounts in California, where consumer default levels increased by more than 10 times, from less than one percent in 2003-2005 time period to near 10 percent in the 2006-2008 window. Yet, VantageScore continues to show strong rank ordering capability, as seen in Figure 5. When we think about score robustness, we want to know that a credit score is performing very strongly as it was designed to perform, that is, properly rank ordering even in extreme environmental changes.

*How often do you conduct performance analyses on the credit score you use? Almost 40 percent indicated that credit score performance testing has historically been sporadic and continuous to be sporadic, and another one-third have never tested their credit score's performance.*

Scoring models should be validated and maintained through annual evaluations. It's really important to understand where risk is being distributed and how lender strategies, especially cut-offs, may need to be refined to ensure that you're only taking on the kind of risk profiles that institutional P&Ls have been defined to allow, and that the scores in general continue to be very effective risk-management tools. ■

**Figure 5 New Accounts — 90+ Days Past Due Odds: REAL ESTATE**

Rank ordering remains strong over four separate time periods for new real estate accounts in California, despite a significant 10-fold increase in defaults, enabling effective risk management strategy design.



The entire web seminar, including many more graphs and participant questions, is available online: [www.VantageScore.com/research](http://www.VantageScore.com/research)