CU Answers Score Validation Study

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1. INTRODUCTION

As part of CU Answers ongoing effort to improve their risk score management and analytic business practices on behalf of their participating Credit Unions, they engaged Portfolio Defense Consulting Group to statistically validate the SAVANT score used to predict and measure credit risk for auto loans.

Based upon our experience in building custom risk models for many years, it is our opinion that the SAVANT applicant scorecard used by CU Answers has been empirically validated to be a demonstrably and statistically sound credit scoring system, as defined by the criteria set forth in Regulation B of the Equal Credit Opportunity Act (ECOA). The scoring model was validated based on a pool of historic through the door applicant population for the purposes of evaluating creditworthy applicants. The SAVANT model was developed using generally accepted statistical methods and tools. As demonstrated in this report, the scorecard is a are statistically valid rank-orderer of credit risk.

Following this introduction, this document is divided into the following sections

- The Validation Database
- Estimated Performance Statistics
- Statistical Validation of the Score
- Summary

The detailed scorecard and score distributions are provided in the appendices.

2. THE VALIDATION DATABASE

The SAVANT model considers a number of applicant CB characteristics and embeds the generic FICO score in the calculation of the score as well as an additional scored factor. In order to perform an empirical validation study a database needs to be constructed that marries the information captured at the time of application to the subsequent performance data of the booked loans. Ideally, we try to capture as much information as possible. With a longer performance timeframe we can capture and identify more information, but we also need to balance that with the tradeoff in the difficulty of obtaining the historical data versus the potential benefit. Given the current state of the database maintained at CU Answers, performance data older than six months is quite difficult to obtain. In the future this information will be readily available; however, at this point it was not a practical option due to limitations in obtaining the archived data in an automated fashion.

With the shorter loan performance timeframe we also needed to alter our standard definition of "bad" loans. With less than six months of time on books, the newly created loans have not seasoned long enough to reach their peak levels of delinquency. However, we have seen time and time again the high correlation between early mild delinquent loans to more severe delinquency. This is something that we observe across all product types – an account with minor delinquency early-on is more likely to roll into higher levels of delinquency in the future life of the loan. While we would prefer to classify accounts as bad based on more severe levels of delinquency, early delinquency can still give us valuable insight into loan behavior. By selecting a lower threshold for delinquency in this case, we were able to identify a statistically meaningful number of negative performing accounts.

The SAVANT Score was not as well populated in the database as the generic Fico score, and we used all available scored records to validate the score. We also saw that there is the potential to score more records to stratify risk in this group (i.e. there was a low scoring rate). The no score segment tended to be riskier on average, suggesting that Credit Unions were more likely to use the SAVANT score on less risky applicants (with higher average FICO scores), and more likely to use judgmental procedures on higher risk applicants (lower FICO score ranges). We understand that it might be human nation to not use a new tool on applicants that are perceived as more risky, and rely on "tried and true" methods there, but this is actually counterproductive in trying to reduce risk and losses, as scores are more effective decision tools than judgment, regardless of the risk range, and you face potentially increased losses over time by applying a less powerful decision tool on your riskiest applicants.

Through the Door Application Scorecard Flowchart
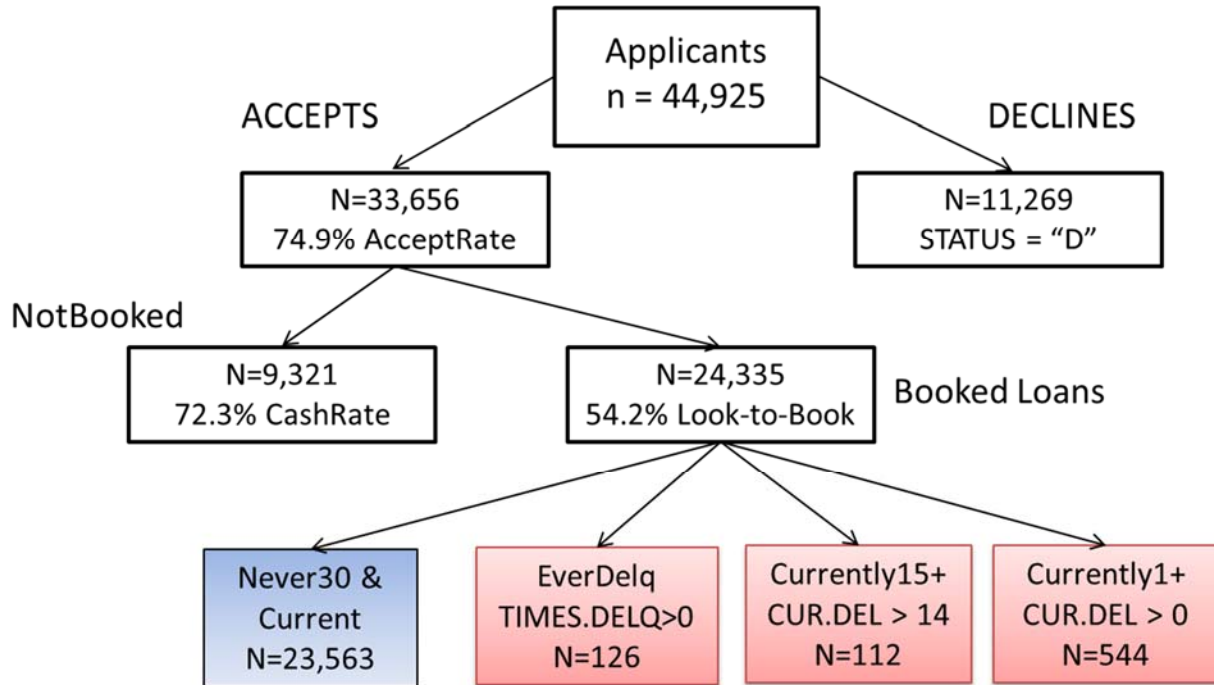
The loan performance classification categories are mutually exclusive. That is, if you are currently 16 days delinquent (CUR.DEL=16) and you have been 30 days in the past (TIMES.DELQ>0), then you will be counted in the EverDelq box. And if you are currently 16 days delinquent (CUR.DEL=16) and you have never triggered the 30 day delinquency counter (TIMES.DELQ=0), then you will be counted in the Currently15+ box.

The timeframe for the validation database includes applicants that applied from July 1, 2015 through November 23, 2015.

The segment of the population with valid non-zero SAVANT scores is a subset of the records above.

## 3.	ESTIMATED SCORECARD PERFORMANCE STATISTICS

We looked at the score distributions to determine the statistical validity of the scorecards. In this section we present the individual scorecard score distribution summary, where we can observe that credit risk improves as the score increases. The statistical test to empirically measure the validity of the scorecards is presented in the next section. The tables and figures in this section help the scorecard users identify the expected business tradeoffs when using the scorecards. Again, these estimates can be improved with ongoing scorecard tracking and updated score distributions.

The cumulative score distributions are created to evaluate scorecard performance. By selecting a specific score for a cutoff, we can estimate the impact on pass rates and booked loan quality. We look at Good vs. Bad performance levels as well as Accept vs. Decline categories. We expect Goods to score higher than Bads. And we also expect Accepts to score higher than Declines. Detailed cumulative score distributions are provided in the appendices at the finest integer score breaks. In order to complete the scorecard validation, we want to look at the data in coarser classings so that each bin contains a reasonable amount of record counts. From these larger bins, a predictive pattern will emerge.

Score Versus Good/Bad Loan Performance

Score	Goods	Bads	G/B Odds
Zero	13,845	564	24.55
<175	618	25	24.72
175-224	898	37	24.27
225-249	1,029	22	46.77
250-274	1,401	36	38.92
275-299	1,566	27	58.00
300-324	1,632	26	62.77
325-349	1,594	22	72.45
350+	980	13	75.38
TOTAL	23,563	772	30.52

- **Score** - The range of SAVANT scores
- **Number of Goods** – Number of Booked Loans Current and Never Delq
- **Number of Bads** – Number of Booked Loans Ever Delq or Currently Delq
- **G/B Odds** - The ratio of Goods / Bads for accounts in that score range.

Note: As scores increase so do the Good/Bad Odds and the quality of loans.

The Zero SAVANT Score records represented a significant portion of the booked loans and have loan performance (24.55 to 1 Odds) that is less than average (30.52 to 1 Odds).

Score Versus Accept vs. Decline

Score	Accept	Decline		Decline%
Zero	20,212	9,050		30.9%
<175	867	207		19.3%
175-224	1,303	327		20.1%
225-249	1,434	297		17.2%
250-274	1,971	379		16.1%
275-299	2,186	362		14.2%
300-324	2,216	285		11.4%
325-349	2,171	243		10.1%
350+	1,296	119		8.4%
TOTAL	33,656	11,269		25.1%

- **Score** - The range of SAVANT scores
- **Number of Accept** – Number of Records not Declined
- **Number of Decline** – Number of Records where STATUS="D"
- **Decline%** - The % of Records Declined in that score range.

Note: As scores increase the Decline percentage generally decreases (or the approval rate increases).

The Zero SAVANT Score records represent a significant portion of the applications and had a higher than average decline rate.

4. STATISTICAL VALIDATION OF THE SCORE

We can see from the score distributions and K-S value that the score separate Goods from Bads. Statistical validity of the score is determined by examining the relationship between odds (the number of good accounts divided by the number of bad accounts) and score. A score is considered valid if higher scoring accounts have higher odds than lower scoring accounts. A statistical hypothesis test is performed to verify the validity of the scores. This test demonstrates that the slope of the odds to score relationship is not flat, and there is a positive relationship between odds and score.

In addition to the validation, Portfolio Defense Consulting Group quantifies the effectiveness of the scores by calculating a measure of the slope of the odds to score relationship. This measure is the number of points required to double the odds. In a hypothetical example, if accounts with a score of 220 have odds of 10 to 1, and accounts with a score of 320 have odds of 20 to 1, then it can be said that it takes 100 points to see the odds double. This measure can be calculated periodically to identify and quantify any degradation in the score's ability to rank-order payment risk.

The calculated PDO value for the SAVANT score is 100.2 points.

From this data, a statistical hypothesis test is conducted to test the validity of the score. A score is deemed statistically valid if the slope of the Natural Log (odds) versus score is significantly (statistically) greater than zero.

In addition to the validity of the score, Portfolio Defense Consulting Group examined the effectiveness of the score. By quantifying the effectiveness of the score, we can identify and measure any degradation in the predictive power of the score over time. The effectiveness of the score is related to the slope of the odds to score relationship. The number of points required to see the odds double is a standard measurement of the ability of the score to separate goods from bads. The PDO graphs clearly indicate a positive non-zero relationship between odds and score. And the steeper the slope of this relationship tells us that the score is more effective.

A confidence interval is calculated for this measurement, because a single number does not offer the best estimate. Often changes in policies can cloud the relationship between score and odds - this changes the profile of accounts that are being examined. In addition limited numbers of bad accounts in the high scoring intervals can make the odds computations less reliable. The calculated 95% confidence range for the number of points to double the odds follows the graphs.

SAVANT Scorecard

The slope, standard deviation of the slope (sd), and test statistic (Z) of the ln(odds) vs. score line are calculated from the distribution of scores. The values are as follows:

Slope	= 0.00692
Standard Deviation of the Slope	= 0.00126
Test Statistic = Slope / (sd)	= 5.4987

Because the Test Statistic is greater than 3.0, the slope of the odds to score relationship is, with 99% confidence, significantly greater than zero. Therefore, the score is a statistically valid rank-orderer of risk.
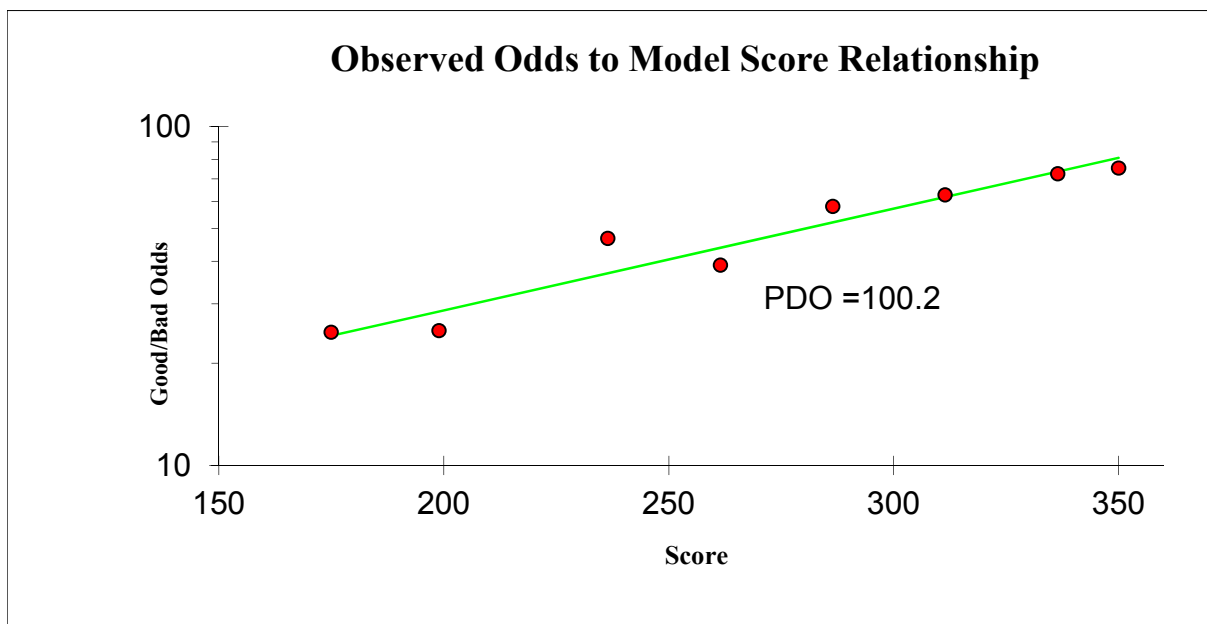
The calculated PDO & 95% Confidence Interval is as follows:

Estimated Points to Double the Odds	100.2
95% Confidence Interval	73.9 to 155.7

5.   SUMMARY

The validation of the SAVANT Scorecard is favorable and this analysis shows that the SAVANT score is a statistically valid predictor of risk for all scorecard segments. This score has been empirically validated to be demonstrably and statistically sound, as defined by the criteria set forth in Regulation B of the Equal Credit Opportunity Act (ECOA).

Portfolio Defense Consulting Group recommends that you continue to use this score with your future business. The effectiveness of the score has been quantified by calculating the number of points required to see a doubling of odds. It is also recommended that periodic calculation of this measure be conducted to track and monitor any degradation in the effectiveness of this tool. If this measure begins to increase significantly, then it suggests a degradation in the usefulness of the score. Over time any score will degrade, but even if the score is still statistically valid there can be sound business reasons for updating and redeveloping new scorecards. These reasons can include the following:

>   Updated Data Available
>   New Predictive Variables Available
>   New Technology
>   Major Changes to the Current Market

While it is known and accepted that the score rank-orders risk - this analysis statistically confirms this fact and provides you with a quantifiable estimate at how well they work on the database. As you continue to monitor and track your business, recalculating these statistics on a more recent book of business and with a deeper database that includes more severe delinquent account level performance will provide you better estimates on future performance. Ultimately, the development and use of an empirically derived scoring model developed from the CU Answers pool of data will provide the ultimate analytic decisioning tool.

APPENDIX A – SAVANT DISTRIBUTION – GOOD vs. BAD

The cumulative score distributions are created by counting the record counts by score versus Good/Bad loan performance. These statistics provide the data for estimated scorecard performance. By selecting a specific score for a cutoff, we can estimate the impact on approval rates and booked loan quality.

- **Score** - The selected cutoff score for strategy purposes
- **Number of Goods** – Number of Goods at that score and above
- **% of Goods** – % of Goods at that score and above
- **Number of Bads** – Number of Bads at that score and above
- **% of Bads** – % of Bads at that score and above
- **Total Counts** – Total number of accounts at that score and above
- **%Total** – Total % of accounts at that score and above
- **Bad Rate** - The % of accounts that score at or above the score that is bad (or the cumulative percent of Bads at or above that score). There is overlap between the score distributions of the Goods and the Bads. The goal is to develop a model that creates the greatest separation between the groups.
- **%Good - % Bad** – The difference between the two cumulative distributions. The max value is the K-S statistic and is highlighted in bold font.
- **Portfolio Odds** - The ratio of Goods / Bads for accounts that score at or above the score.

Savant Score (Model Score)

Score	Goods	%Goods	Bads	%Bads	Total	%Total	BadRate	%G-%B	Odds
380	12	0.1%	-	0.0%	12	0.0%	0.0%	0.1%	
375	42	0.2%	-	0.0%	42	0.2%	0.0%	0.2%	
370	84	0.4%	-	0.0%	84	0.3%	0.0%	0.4%	
365	249	1.1%	2	0.3%	251	1.0%	0.8%	0.8%	124.5
360	448	1.9%	3	0.4%	451	1.9%	0.7%	1.5%	149.3
355	707	3.0%	11	1.4%	718	3.0%	1.5%	1.6%	64.3
350	980	4.2%	13	1.7%	993	4.1%	1.3%	2.5%	75.4
345	1,265	5.4%	15	1.9%	1,280	5.3%	1.2%	3.4%	84.3
340	1,555	6.6%	21	2.7%	1,576	6.5%	1.3%	3.9%	74.0
335	1,840	7.8%	25	3.2%	1,865	7.7%	1.3%	4.6%	73.6
330	2,221	9.4%	32	4.2%	2,253	9.3%	1.4%	5.3%	69.4
325	2,574	10.9%	35	4.5%	2,609	10.7%	1.3%	6.4%	73.5
320	3,029	12.9%	38	4.9%	3,067	12.6%	1.2%	7.9%	79.7
315	3,284	13.9%	43	5.6%	3,327	13.7%	1.3%	8.4%	76.4
310	3,599	15.3%	47	6.1%	3,646	15.0%	1.3%	9.2%	76.6
305	3,866	16.4%	55	7.1%	3,921	16.1%	1.4%	9.3%	70.3
300	4,206	17.9%	61	7.9%	4,267	17.5%	1.4%	9.9%	69.0
295	4,556	19.3%	68	8.8%	4,624	19.0%	1.5%	10.5%	67.0
290	4,895	20.8%	71	9.2%	4,966	20.4%	1.4%	11.6%	68.9
285	5,202	22.1%	76	9.9%	5,278	21.7%	1.4%	12.2%	68.4
280	5,485	23.3%	83	10.8%	5,568	22.9%	1.5%	12.5%	66.1
275	5,772	24.5%	88	11.4%	5,860	24.1%	1.5%	13.1%	65.6

Savant Score (Model Score) continued

Score	Goods	%Goods	Bads	%Bads	Total	%Total	BadRate	%G-%B	Odds
270	6,092	25.9%	98	12.7%	6,190	25.4%	1.6%	13.1%	62.2
265	6,412	27.2%	105	13.6%	6,517	26.8%	1.6%	13.6%	61.1
260	6,741	28.6%	112	14.5%	6,853	28.2%	1.6%	14.1%	60.2
255	6,949	29.5%	118	15.3%	7,067	29.0%	1.7%	14.2%	58.9
250	7,173	30.4%	124	16.1%	7,297	30.0%	1.7%	14.4%	57.8
245	7,398	31.4%	129	16.7%	7,527	30.9%	1.7%	14.7%	57.3
240	7,607	32.3%	133	17.3%	7,740	31.8%	1.7%	15.0%	57.2
235	7,817	33.2%	138	17.9%	7,955	32.7%	1.7%	15.3%	56.6
230	8,062	34.2%	144	18.7%	8,206	33.7%	1.8%	15.5%	56.0
225	8,201	34.8%	146	18.9%	8,347	34.3%	1.7%	15.9%	56.2
220	8,304	35.2%	146	18.9%	8,450	34.7%	1.7%	16.3%	56.9
215	**8,432**	**35.8%**	**149**	**19.3%**	**8,581**	**35.3%**	**1.7%**	**16.5%**	**56.6**
210	8,539	36.2%	155	20.1%	8,694	35.7%	1.8%	16.1%	55.1
205	8,631	36.6%	162	21.0%	8,793	36.1%	1.8%	15.6%	53.3
200	8,727	37.0%	167	21.7%	8,894	36.6%	1.9%	15.4%	52.3
195	8,808	37.4%	170	22.0%	8,978	36.9%	1.9%	15.3%	51.8
190	8,901	37.8%	172	22.3%	9,073	37.3%	1.9%	15.5%	51.8
185	8,965	38.1%	175	22.7%	9,140	37.6%	1.9%	15.4%	51.2
180	9,046	38.4%	179	23.2%	9,225	37.9%	1.9%	15.2%	50.5
175	9,099	38.6%	182	23.6%	9,281	38.1%	2.0%	15.0%	50.0
170	9,167	38.9%	183	23.7%	9,350	38.4%	2.0%	15.2%	50.1
165	9,220	39.1%	185	24.0%	9,405	38.7%	2.0%	15.1%	49.8
160	9,275	39.4%	188	24.4%	9,463	38.9%	2.0%	15.0%	49.3
155	9,320	39.6%	188	24.4%	9,508	39.1%	2.0%	15.2%	49.6
150	9,368	39.8%	189	24.5%	9,557	39.3%	2.0%	15.2%	49.6
145	9,409	39.9%	191	24.8%	9,600	39.5%	2.0%	15.2%	49.3
140	9,463	40.2%	192	24.9%	9,655	39.7%	2.0%	15.3%	49.3
135	9,499	40.3%	193	25.0%	9,692	39.8%	2.0%	15.3%	49.2
130	9,537	40.5%	194	25.2%	9,731	40.0%	2.0%	15.3%	49.2
125	9,567	40.6%	196	25.4%	9,763	40.1%	2.0%	15.2%	48.8
120	9,594	40.7%	198	25.7%	9,792	40.2%	2.0%	15.0%	48.5
115	9,620	40.8%	200	25.9%	9,820	40.4%	2.0%	14.9%	48.1
110	9,635	40.9%	202	26.2%	9,837	40.4%	2.1%	14.7%	47.7
105	9,657	41.0%	203	26.3%	9,860	40.5%	2.1%	14.7%	47.6
100	9,670	41.0%	203	26.3%	9,873	40.6%	2.1%	14.7%	47.6
95	9,681	41.1%	205	26.6%	9,886	40.6%	2.1%	14.5%	47.2
90	9,692	41.1%	206	26.7%	9,898	40.7%	2.1%	14.4%	47.0
85	9,700	41.2%	206	26.7%	9,906	40.7%	2.1%	14.5%	47.1
80	9,704	41.2%	206	26.7%	9,910	40.7%	2.1%	14.5%	47.1
75	9,706	41.2%	206	26.7%	9,912	40.7%	2.1%	14.5%	47.1
70	9,710	41.2%	207	26.8%	9,917	40.8%	2.1%	14.4%	46.9
65	9,715	41.2%	207	26.8%	9,922	40.8%	2.1%	14.4%	46.9
30	9,716	41.2%	207	26.8%	9,923	40.8%	2.1%	14.4%	46.9
Zero	23,561	100.0%	771	100.0%	24,332	100.0%	3.2%	0.0%	30.6

The KS is 16.5 observed at a cutoff of 215 and pass rate of 35.3%.

APPENDIX B – SAVANT DISTRIBUTION – ACCEPT vs. DECLINE

The cumulative score distributions are created by counting the record counts by score versus Accept/Decline Status indicators. These statistics provide the data for estimated scorecard performance. By selecting a specific score for a cutoff, we can estimate the impact on approval rates.

- **Score** - The selected cutoff score for strategy purposes
- **Number of Accepts** – Number of Accepts at that score and above
- **% of Accepts** – % of Accepts at that score and above
- **Number of Declines** – Number of Declines at that score and above
- **% of Declines** – % of Declines at that score and above
- **Total Counts** – Total number of records at that score and above
- **%Total** – Total % of records at that score and above
- **Decline Rate** - The % of records that score at or above the score that are declined.
- **%A - % D** – The difference between the two cumulative distributions. The max value is the K-S statistic and is highlighted in bold font.

Savant Score (Model Score)

Score	Accepts	%A	Decline	%D	Total	%Total	Arate	%A-%D
380	15	0.0%	4	0.0%	19	0.0%	78.9%	0.0%
375	63	0.2%	14	0.1%	77	0.2%	81.8%	0.1%
370	113	0.3%	19	0.2%	132	0.3%	85.6%	0.2%
365	328	1.0%	36	0.3%	364	0.8%	90.1%	0.7%
360	590	1.8%	64	0.6%	654	1.5%	90.2%	1.2%
355	933	2.8%	87	0.8%	1,020	2.3%	91.5%	2.0%
350	1,296	3.9%	119	1.1%	1,415	3.1%	91.6%	2.8%
345	1,676	5.0%	161	1.4%	1,837	4.1%	91.2%	3.6%
340	2,040	6.1%	197	1.7%	2,237	5.0%	91.2%	4.3%
335	2,441	7.3%	228	2.0%	2,669	5.9%	91.5%	5.2%
330	2,968	8.8%	289	2.6%	3,257	7.2%	91.1%	6.3%
325	3,467	10.3%	362	3.2%	3,829	8.5%	90.5%	7.1%
320	4,070	12.1%	420	3.7%	4,490	10.0%	90.6%	8.4%
315	4,409	13.1%	468	4.2%	4,877	10.9%	90.4%	8.9%
310	4,838	14.4%	529	4.7%	5,367	11.9%	90.1%	9.7%
305	5,215	15.5%	590	5.2%	5,805	12.9%	89.8%	10.3%
300	5,683	16.9%	647	5.7%	6,330	14.1%	89.8%	11.1%
295	6,171	18.3%	710	6.3%	6,881	15.3%	89.7%	12.0%
290	6,632	19.7%	786	7.0%	7,418	16.5%	89.4%	12.7%
285	7,083	21.0%	861	7.6%	7,944	17.7%	89.2%	13.4%
280	7,468	22.2%	921	8.2%	8,389	18.7%	89.0%	14.0%
275	7,869	23.4%	1,009	9.0%	8,878	19.8%	88.6%	14.4%
270	8,311	24.7%	1,083	9.6%	9,394	20.9%	88.5%	15.1%
265	8,765	26.0%	1,158	10.3%	9,923	22.1%	88.3%	15.8%
260	9,233	27.4%	1,255	11.1%	10,488	23.3%	88.0%	16.3%
255	9,533	28.3%	1,333	11.8%	10,866	24.2%	87.7%	16.5%

Savant Score (Model Score) continued

Score	Accepts	%A	Decline	%D	Total	%Total	Arate	%A-%D
250	9,840	29.2%	1,388	12.3%	11,228	25.0%	87.6%	16.9%
245	10,148	30.2%	1,468	13.0%	11,616	25.9%	87.4%	17.1%
240	10,430	31.0%	1,528	13.6%	11,958	26.6%	87.2%	17.4%
235	10,742	31.9%	1,591	14.1%	12,333	27.5%	87.1%	17.8%
230	11,078	32.9%	1,649	14.6%	12,727	28.3%	87.0%	18.3%
225	11,274	33.5%	1,685	15.0%	12,959	28.8%	87.0%	18.5%
220	11,416	33.9%	1,709	15.2%	13,125	29.2%	87.0%	18.8%
215	11,589	34.4%	1,753	15.6%	13,342	29.7%	86.9%	18.9%
210	11,756	34.9%	1,784	15.8%	13,540	30.1%	86.8%	19.1%
205	11,903	35.4%	1,811	16.1%	13,714	30.5%	86.8%	19.3%
200	12,037	35.8%	1,843	16.4%	13,880	30.9%	86.7%	19.4%
195	12,160	36.1%	1,880	16.7%	14,040	31.3%	86.6%	19.4%
190	12,303	36.6%	1,912	17.0%	14,215	31.6%	86.5%	19.6%
185	12,400	36.8%	1,953	17.3%	14,353	31.9%	86.4%	19.5%
180	12,505	37.2%	1,992	17.7%	14,497	32.3%	86.3%	19.5%
175	12,577	37.4%	2,012	17.9%	14,589	32.5%	86.2%	19.5%
170	12,666	37.6%	2,037	18.1%	14,703	32.7%	86.1%	19.6%
165	12,740	37.9%	2,056	18.2%	14,796	32.9%	86.1%	19.6%
160	12,822	38.1%	2,075	18.4%	14,897	33.2%	86.1%	19.7%
155	12,895	38.3%	2,094	18.6%	14,989	33.4%	86.0%	19.7%
150	12,962	38.5%	2,103	18.7%	15,065	33.5%	86.0%	19.9%
145	13,019	38.7%	2,118	18.8%	15,137	33.7%	86.0%	19.9%
140	13,090	38.9%	2,127	18.9%	15,217	33.9%	86.0%	20.0%
135	13,143	39.1%	2,138	19.0%	15,281	34.0%	86.0%	20.1%
130	13,198	39.2%	2,151	19.1%	15,349	34.2%	86.0%	20.1%
125	13,242	39.3%	2,164	19.2%	15,406	34.3%	86.0%	20.1%
120	13,274	39.4%	2,174	19.3%	15,448	34.4%	85.9%	20.1%
115	13,310	39.5%	2,183	19.4%	15,493	34.5%	85.9%	20.2%
110	13,339	39.6%	2,190	19.4%	15,529	34.6%	85.9%	20.2%
105	13,370	39.7%	2,195	19.5%	15,565	34.6%	85.9%	20.2%
100	**13,386**	**39.8%**	**2,198**	**19.5%**	**15,584**	**34.7%**	**85.9%**	**20.3%**
95	13,403	39.8%	2,203	19.5%	15,606	34.7%	85.9%	20.3%
90	13,416	39.9%	2,208	19.6%	15,624	34.8%	85.9%	20.3%
85	13,424	39.9%	2,213	19.6%	15,637	34.8%	85.8%	20.2%
80	13,428	39.9%	2,214	19.6%	15,642	34.8%	85.8%	20.3%
75	13,430	39.9%	2,216	19.7%	15,646	34.8%	85.8%	20.2%
70	13,435	39.9%	2,216	19.7%	15,651	34.8%	85.8%	20.3%
65	13,442	39.9%	2,218	19.7%	15,660	34.9%	85.8%	20.3%
60	13,443	39.9%	2,218	19.7%	15,661	34.9%	85.8%	20.3%
30	13,444	39.9%	2,219	19.7%	15,663	34.9%	85.8%	20.3%
Zero	33,656	100.0%	11,269	100.0%	44,925	100.0%	74.9%	0.0%

The KS is 20.3 observed at a cutoff of 100 and pass rate of 34.7%.