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TAKE CONTROL A ROADMAPFOR GROWTH #vision2016



#### VISION 2016 — TAKE CONTROL A ROADMAPFOR GROWTH





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 Brodie Oldham Experian



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#### Setting the stage

- Overview of generic risk scores
- Attributes that feed scores
- Regulatory environment

#### Low volume analysis

- Generic performance charts
- Performance review
- Regional analysis

#### What action should be taken

- Validations
- Crosswalks







- Regulatory requirements
- Economic volatility
- Changing consumer behavior
- Challenger score validation
- Strategy analysis development





#### Scoring models used for underwriting

should include data from rejected applications to correct for estimation bias that arises if only approved accounts are used

#### **Population stability report:**

This report measures changes in applicant score distribution over time. The report compares the current application population with the population on which the scoring system was developed

#### **Characteristic analysis report:**

This report measures changes in applicants' scores on individual characteristics over time. It is needed when the applicant population stability has changed and the bank wants to determine which characteristics are being affected

#### **Final score report:**

This report measures the approval rate and adherence to the scorecard

Office of the Comptroller of the Currency





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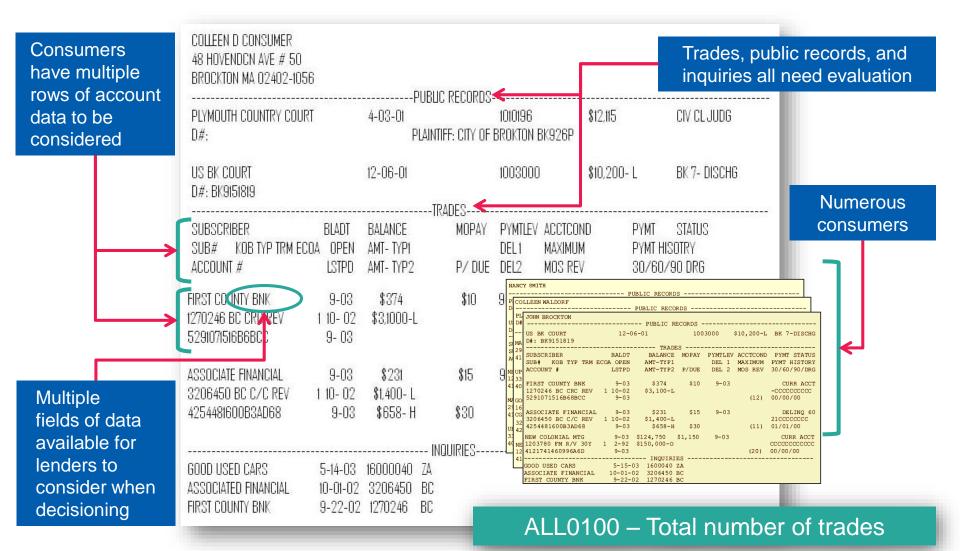
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### **Overview of generic scores and attributes**



#### Varying pieces of complex consumer credit information

#### Converted into analytical tools





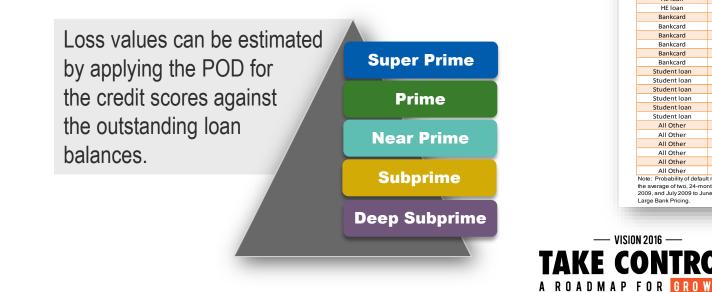
**Premier Attributes<sup>SM</sup>** is the credit industry's most robust, accurate and comprehensive set of tri-bureau leveled attributes that enable organizations to make more strategic and data-driven decisions across the Customer Life Cycle

Enhanced modeling opportunities and lending decisions **Predictive power and** Innovative attribute concepts and attributes as new data analytical precision elements become available Efficient model development – build one model **Patented tri-bureau** on one data source leveling Consistent decisioning across all three data sources Development protocol and documentation stands-up to regulatory scrutiny Attribute governance Rigorous monthly validation process to ensure continue integrity of attributes



#### Leading brands in the market:

- Predict the likelihood of future serious delinguencies (90 days late or greater) on any type of account
- 24-month performance window
- Score range of 300-850 (higher scores represent a lower likelihood of risk)



FDIC Proba	VantageScore <sup>®</sup> 3. bility of Default Ma	
Product Group	Score	Probability of Defa
Auto	850	0.0048
Auto	849	0.0049
Auto	301	1.0000
Auto	300	1.0000
Mortgage	850	0.0125
Mortgage	849	0.0126
Mortgage	848	0.0127
Mortgage	302	1.0000
Mortgage	301	1.0000
Mortgage	300	1.0000
HELOC	850	0.0062
HELOC	849	0.0063
HELOC	848	0.0063
HELOC	302	1.0000
HELOC	301	1.0000
HELOC	300	1.0000
HE loan	850	0.0120
HE loan	849	0.0122
HE loan	848	0.0123
HE loan	302	1.0000
HE loan	301	1.0000
HE loan	300	1.0000
Bankcard	850	0.0075
Bankcard	849	0.0076
Bankcard	848	0.0077
Bankcard	302	1.0000
Bankcard	301	1.0000
Bankcard	300	1.0000
Student loan	850	0.0099
Student loan	849	0.0100
Student loan	848	0.0101
Student loan	302	1.0000
Student loan	301	1.0000
Student loan	300	1.0000
All Other	850	0.0048
All Other	849	0.0049
All Other	848	0.0049
All Other	302	1.0000
All Other	301	1.0000
All Other	300	1.0000
All Other Note: Probability of default r the average of two, 24-mont 2009, and July 2009 to June Large Bank Pricing.	ates do not reflect cur h default rates observ	rrent time periods. The P ved from July 2007 to Jun

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#### What is a model validation?

- A process designed to measure how well a model works on a portfolio
- In an historical validation, accounts booked or monitored are scored at an observation date
  - For new accounts, this is typically at time of acquisition (e.g., accounts booked 12-24 months ago)
  - For existing accounts, this is typically all accounts that are open at a certain point in time
- The scores at observation date are then compared to the accounts' actual account performance during the performance window to validate how well the model performs







#### Why do a model validation?

- An historical model validation can be used to:
  - Compare different models
  - Increase portfolio volume
  - Lower portfolio bad rates
  - Determine cutoff scores
  - Assign various strategies or credit limits





# WHAT DO YOU THINK? 500

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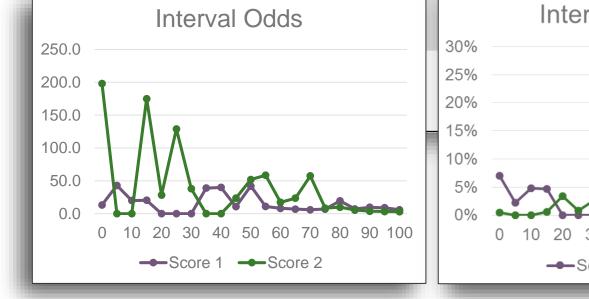
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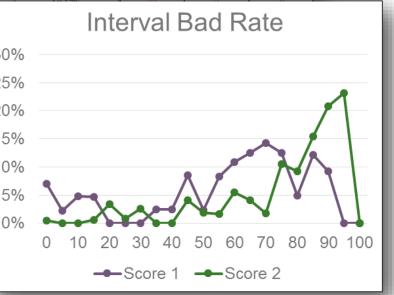
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#### Example of performance chart with low volume

S CORE		Т	OTAL RECORDS		1	PERFORMANC	E
INTERVAL	S cor ed	% Total (Interv.)	% S coreable (Interv.)	% S coreable (Cum.)	Good	B ad	Indtrmnt.
749-929	43	1.74%	5.14%	5.14%	40	3	0
726-747	44	1.78%	5.26%	10.41%	43	1	0
711-725	42	1.70%	5.02%	15.43%	40	2	
698-710	43	1.74%	5.14%	20.57%	41	2	
686-697	39	1.58%	4.67%	25.24%	39	0	0
679-685	41	1.66%	4.90%	30.14%	41	0	0
672-678	44	1.78%	5.26%	35.41%	44	0	0
665-671	40	1.62%	4.78%	40.19%	39	<b>I</b>	0
657-664	41	1.66%	4.90%	45.10%	40	1	0
648-656	47	1.90%	5.62%	50.72%	43	4	0
643-647	43	1.74%	5.14%	55.86%	42	1	0





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#### How do we solve for low volume segments and portfolios?

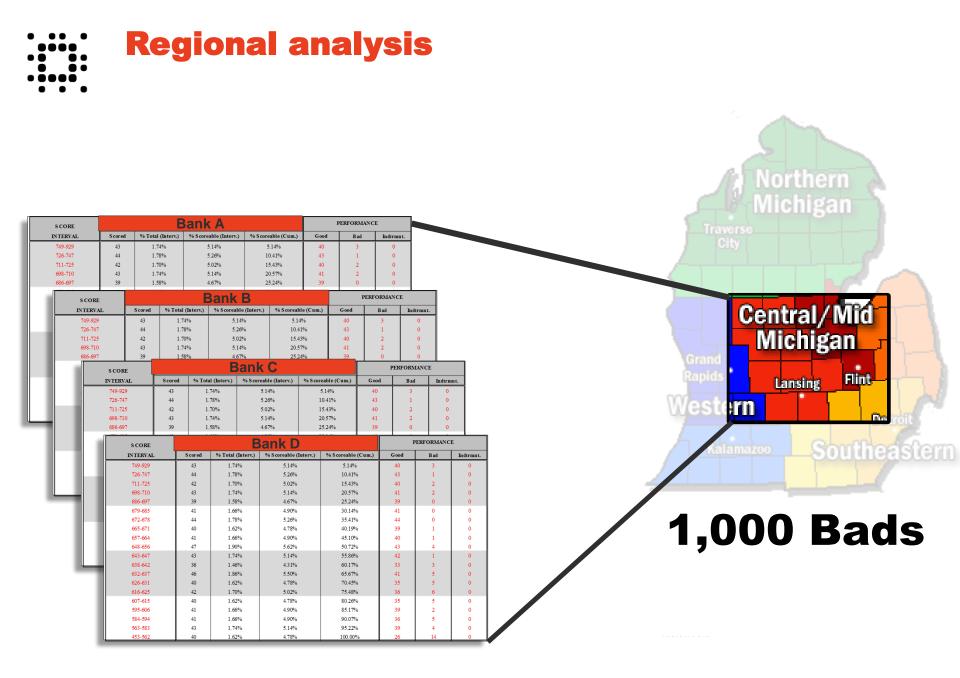


- Generic performance charts
  - Crosswalk analysis
- Regional analysis
- Performance review
- Reject inferencing

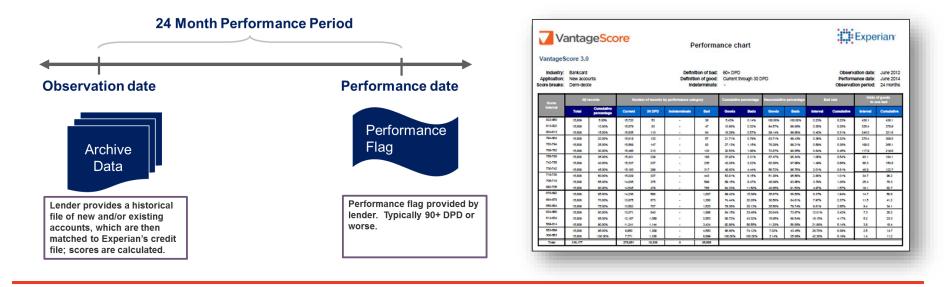




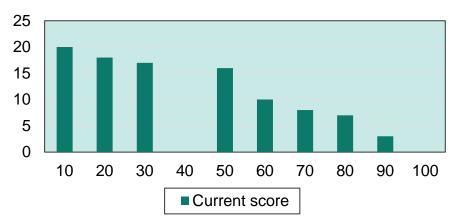
Indu Applica	ex PLUS <sup>SM</sup> Jetry: Bankca ation: New aci rvals: Fixed br	counts		Definit	ition of bad	Ormanc : 90 DPD ti : Current ti : 60 DPD	hrough Char		1	Observation da Performance da Observation perfo	te: June 2013 te: June 2015		of	ene de sc	faı	ılt	on	U.		y sar	np	le
Scon		Ul records Cumulative percentace		records by performat	nce category Bad	Cumulative	percentage	Decumulative pero	ntage Bad r		to one bad		Ny	50								
675-90	Total 00 3.159	percentage 0.5%	Good 3,160	Indeterminate	6	Goods	Bads	Goods B		Output S20.7												
051-07	75 12,027	3.9%	12,790	15	22	4.22%	0.11%	99.10% 99.	0% 0.17%	0.10% 501.4												
001-02	25 56,750	25.0%	56,365	109	254	27.41%	1.54%	1														
775-00		30.7%	52,740 42,300	195	467 721	41.37% 52.50%	3.50% 6.42%		Vanta	ge <mark>Sco</mark>	aro										Expe	rian
726-75		50.1%	34,515	201	969	01.71% 09.19%	10.34%		vaiila	gesc	ле		Р	erforma	nce ch	art					LAPO	i icari
676-70		71.3%	22,728	308	1,203	75.20% 00.74%	19.59%															
625-65	80 22,907	82.6%	20,469	413	2,025	00.74%	33.63%	Vanta	geScore 3.	0												
575-60	15,670	00.4% 00.0%	13,341 7,205	362 275	1,967	09.09% 91.59%	41.70%	Indu	try: Bankcar	1			Defin	ition of bad:	60+ DPD					Observ	ation date:	June 2012
551-57		90.7%	6,780	314	1,603	93.39% 96.30%	53.97% 69.02%	Applica	Ion: New acc	ounts			Definit	ion of good:	Current t		PD			Perform	ance date:	June 2014
501-50 475-50		90.7%	10,135	606 201	4,700	90.90%	80.00% 90.44%	Score bre	aks: Demi-de	dle			Inc	ieterminate:	-					Observat	ion period:	24 months
451-47	75 778	100.0%	3,454	32	367	100.00%	99.92%			records	Num	ber of records.	by performance cat	BOON	Cumulative	percentage	Decumulativ	re percentage		d rate	Odds	of goods
Total	31	100.0%	12 377,962	4,623	19 24,739	100.00%	100.00%	Score		Cumulative		-									10 0	ne bad
									Total	percentage	Current	30 DPD	Indeterminate	Bed	Goods	Bads	Goods	Bada	Interval	Cumulative	Interval	Cumulative
								022-05	1 al anair	5.00%	15,720	53		36 47	5.43%	0.14%	94.57%	100.00%	0.22%	0.25%	438.1	438.1
								004-01		15.00%	15,635	110		64	16.29%	0.57%	09.14%	99.00%	0.40%	0.31%	245.0	321.6
								794-00	15,809	20.00%	15,619	133		57	21.71%	0.79%	03.71%	99.47%	0.30%	0.32%	276.4	309.0
								702-79	15,809	25.00%	15,509	147		93 133	27.13%	1.15%	70.29%	99.21%	0.59%	0.38%	109.0	265.1
								755-76		35.00%	15,401	239		165	37.92%	2.31%	67.47%	90.34%	1.00%	0.54%	93.1	104.1
								742-75	15,809	40.00%	15,337	237	•	235	40.20%	3.22%	62.00%	97.09%	1.49%	0.00%	66.3	150.0
								730-74	15,009	45.00%	15,193	299		317	40.62%	4.44%	56.72%	96.70%	2.01%	0.01%	48.9	122.7
								705-71		50.00%	15,029	337		443	53.91%	6.15% 8.47%	51.30%	95.50%	2.00%	1.01%	34.7	90.2 70.3
								692-70	15,009	60.00%	14,545	479		705	64.33%	11.50%	40.05%	91.52%	4.97%	1.57%	18.1	62.7
								670-02	15,809	65.00%	14,236	566		1,007	69.42%	15.39%	35.67%	88.50%	6.37%	1.94%	14.7	50.6
								664-67	15,000	70.00%	13,875	673		1,260	74.44%	20.26%	30.50%	04.01%	7.97%	2.37%	11.5	41.2
								004-07		70.00% 75.00% 80.00%	13,875 13,582 13,071	673 707 540	-	1,250 1,520 1,090	74.44% 79.30% 04.15%	20.26% 26.13% 33.46%	30.50% 25.50% 20.64%	04.01% 79.74% 73.07%	7.97% 9.01% 12.01%	2.37% 2.85% 3.42%	11.5 9.4 7.3	41.2 34.1 20.2
								654-67 650-68 634-68 614-63	15,808 15,809 15,809 15,809	75.00% 80.00% 85.00%	13,582	707 840 1,059		1,520	79.30% 04.15% 00.72%	25.13% 33.46% 43.32%	25.50% 20.64% 15.85%	79.74% 73.07% 00.54%	9.01% 12.01% 10.15%	2.05% 3.42% 4.17%	9.4	34.1
								654-67 650-66 634-63 614-63 509-61	15,805 15,809 15,809 15,809 15,809	75.00% 80.00% 85.00% 90.00%	13,502 13,071 12,197 11,241	707 540 1,059 1,144		1,520 1,090 2,553 3,424	79.30% 04.15% 00.72% 92.90%	26.13% 33.46% 43.32% 56.55%	25.50% 20.64% 15.85% 11.20%	79.74% 73.07% 66.54% 56.60%	9.01% 12.01% 16.15% 21.00%	2.05% 3.42% 4.17% 5.14%	9.4 7.3 5.2 3.6	34.1 20.2 23.0 10.4
								654-67 650-68 634-68 614-63	15,808 15,809 15,809 15,809	75.00% 80.00% 85.00%	13,562 13,071 12,197	707 840 1,059		1,520 1,090 2,553	79.30% 04.15% 00.72%	25.13% 33.46% 43.32%	25.50% 20.64% 15.85%	79.74% 73.07% 00.54%	9.01% 12.01% 10.15%	2.05% 3.42% 4.17%	9.4 7.3 5.2	34.1 20.2 23.0
								664-67 650-66 614-63 509-61 553-50	15,808 15,809 15,809 15,809 15,809 15,809	75.00% 80.00% 85.00% 90.00% 95.00%	13,582 13,071 12,197 11,241 9,950	707 640 1,059 1,144 1,309		1,520 1,090 2,553 3,424 4,550	79.30% 04.15% 08.72% 92.90% 98.00%	20.12% 23.40% 43.32% 50.55% 74.12%	25.50% 20.64% 15.85% 11.28% 7.02%	79.74% 73.07% 60.54% 50.60% 43.45%	9.01% 12.01% 16.15% 21.00% 20.70%	2.05% 3.42% 4.17% 5.14% 0.39%	94 73 52 36 25	34.1 20.2 23.0 10.4 14.7







**Bad rate** 



- Performance evaluation
- Rank order

\*Not a statistically valid population



#### **Increase the volume of your test sample**

- Evaluate your decline and approved not booked population
- Evaluate potential prospects by geography or profile

#### **Performance definitions**

#### **Generic performance Definition**

Premier Attributes<sup>SM</sup> Example: 90+DPD Bankcard

#### **Custom performance definitions** Example: 90+DPD on Bankcard with credit limit less than \$1000





## WHAT DO YOU THINK?

# Challenge



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#### **Retro score performance review**

Score 1	Sum of _FREQ_	Sum of good	Sum of bad	Bad Rate %	Score 2	Sum of _FREQ_	_ Sum of good	Sum of bad	Bad Rate %
1	500	100	400	66.73%	1	500	50	450	66.73%
2	450	100	350	63.78%	2	450	50	400	61.56%
3	400	100	300	60.28%	3	400	50	250	54.72%
4	350	100	250	56.07%	4	350	50	300	45.36%
5	300	100	200	50.95%	5	300	50	250	31.90%
6	250	100	150	44.67%	6	250	200	50	11.33%
7	200	100	100	37.00%	7	200	175	25	7.00%
8	150	100	50	28.33%	8	150	145	5	3.33%
9	100	75	25	23.33%	9	100	95	5	3.33%
10	50	40	10	20.00%	10	50	50	0	0.00%
						-			

Comparing performance of current or generic model to Experian scores, and developing transition plan to new score





#### Swap set analysis

#### **Questions to answer**

- Would Experian data have allowed you to make a different decision?
- How do I identify new potential members?
- Could I have approved more good members while maintaining the same risk?

Score	%	
No Hits	7.50%	Unscoreables can be passed
Exclusions	1.50%	to an alternative score
300-399	0.43%	
400-499	9.08%	
500-549	12.00%	
550-599	14.00%	
600-639	8.74%	
640-699	21.00%	Additional applications that
700-749	9.50%	could be approved
750-799	8.50%	
800-849	7.75%	

## Challenge

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#### Knowing the options:

- Generic performance charts
- Regional analysis
- Performance review
- Reject inferencing

#### A historical validation can be used to:

- Compare different models
- Increase portfolio volume
- Lower portfolio bad rates
- Determine cutoff scores
- Assign various strategies
- Evaluate credit lines



## KNOW YOUR **OPTIONS!**





## 

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## For additional information, please contact:

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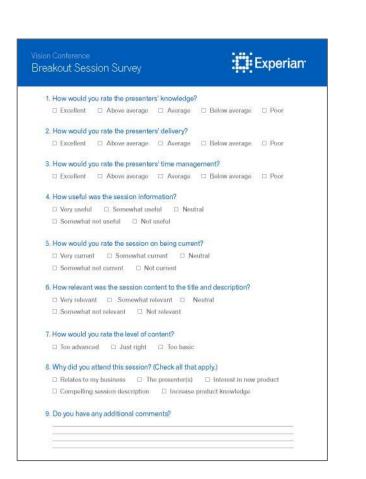
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Monday	
12:30 PM - 1:30 PM	
Best practices in risk model development	>
Strategy	
1:45 PM - 2:45 PM	
Not Attending Breakout Session	>
None	
3:15 PM - 4:15 PM Driving profitable growth through targeting and underwriting the marginal consumer Strategy	>
4:30 PM - 5:30 PM	
The yin and yang of pricing profitably and the Allowance for Loan and Lease Losses	18
Strategy	
Tuesday	
10:00 AM - 11:00 AM Attracting and retaining commercial and	1

2 Select sessio

Select the breakout session you attended

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Best practice	es in risk model de	velopment
Date Mor	n	
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