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1

Alternative methods to validate with low portfolio volumes

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35TH ANNIVERSARY

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Experian®

Introducing:

- **Brodie Oldham**
  Experian

Agenda

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

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Industry challenges

- Regulatory requirements

- Economic volatility

- Changing consumer behavior

- Challenger score validation

- Strategy analysis development

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Regulatory
Validation requirements

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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Overview of generic scores and attributes

Varying pieces of complex consumer credit information
Converted into analytical tools

Consumers have multiple rows of account data to be considered

Trades, public records, and inquiries all need evaluation

Numerous consumers

Multiple fields of data available for lenders to consider when decisioning

ALL0100 – Total number of trades

COLLEEN D CONSUMER
48 HOVENDCN AVE # 50
BROCKTON MA 02402-1056

-- PUBLIC RECORDS --

PLYMOUTH COUNTRY COURT   4-03-01   1010196 $12,115   CIV CL JUDG
D#:   PLAINTIFF: CITY OF BROKTON BK926P

US BK COURT   12-06-01   1003000 $10,200- L   BK 7- DISCHG
D#: BK9151819

-- TRADES --

SUBSCRIBER	BLADT	BALANCE	MOPAY	PYMTLEV	ACCTCOND	PYMT	STATUS
SUB# KOB TYP TRM ECOA	OPEN	AMT- TYP1		DEL1	MAXIMUM	PYMT HISOTRY	
ACCOUNT #	LSTPD	AMT- TYP2	P/ DUE	DEL2	MOS REV	30/60/90 DRG	

FIRST COUNTY BNK   9-03 $374 $10   9
1270246 BC CRC REV   1 10- 02 $3,1000-L
5291071516B6BCC   9- 03

ASSOCIATE FINANCIAL   9-03 $231 $15   9
3206450 BC C/C REV   1 10- 02 $1,400- L
4254481600B3AD68   9-03 $658- H $30

-- INQUIRIES --

GOOD USED CARS   5-14-03   16000040   ZA
ASSOCIATED FINANCIAL   10-01-02 3206450   BC
FIRST COUNTY BNK   9-22-02   1270246   BC

Premier Attributes^{SM}

> **Premier Attributes^{SM}** 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

Predictive power and analytical precision

- Enhanced modeling opportunities and lending decisions
- Innovative attribute concepts and attributes as new data elements become available

Patented tri-bureau leveling

- Efficient model development – build one model on one data source
- Consistent decisioning across all three data sources

Attribute governance

- Development protocol and documentation stands-up to regulatory scrutiny
- Rigorous monthly validation process to ensure continue integrity of attributes

Generic risk scores
Overview

Leading brands in the market:

- Predict the likelihood of future serious delinquencies (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)

Loss values can be estimated by applying the POD for the credit scores against the outstanding loan balances.

Super Prime

Prime

Near Prime

Subprime

Deep Subprime
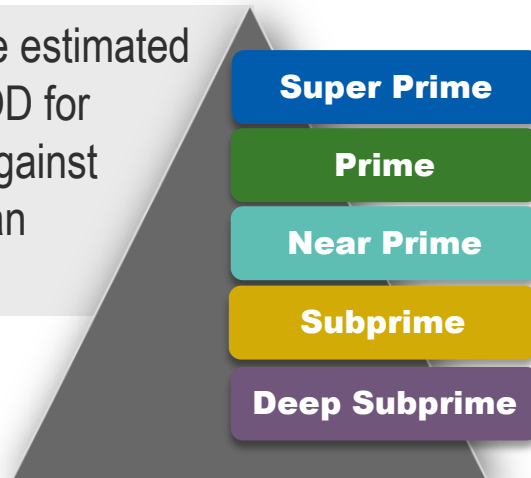
VantageScore®3.0
FDIC Probability of Default Mapping Table

Product Group	Score	Probability of Default
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

Note: Probability of default rates do not reflect current time periods. The PD is the average of two, 24-month default rates observed from July 2007 to June 2009, and July 2009 to June 2011. See the FDIC final rule for Assessments, Large Bank Pricing.

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# Model validation
What and why?

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

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Model validation
What and why?

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

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WHAT DO YOU THINK?

500

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Example of performance chart with low volume

SCORE INTERVAL	TOTAL RECORDS				PERFORMANCE		
	Scored	% Total (Interv.)	% Scoreable (Interv.)	% Scoreable (Cum.)	Good	Bad	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	0
698-710	43	1.74%	5.14%	20.57%	41	2	0
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	1	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

Interval Odds

Interval Bad Rate
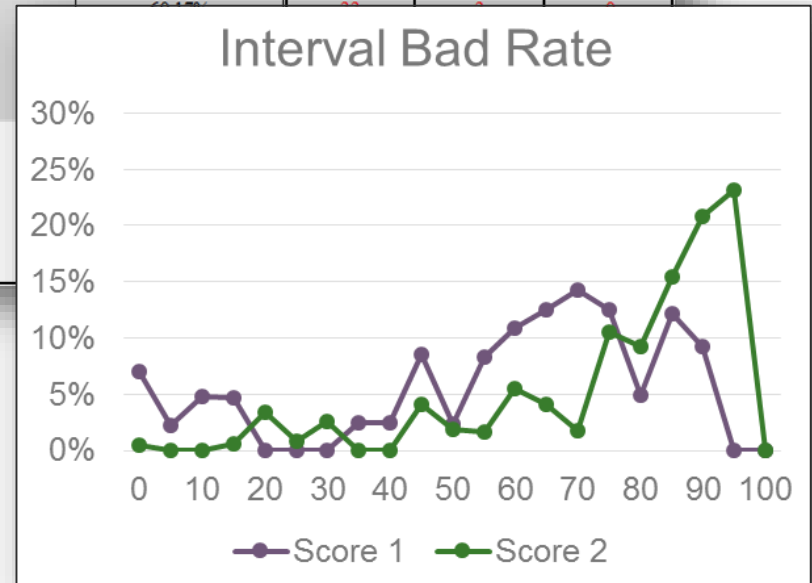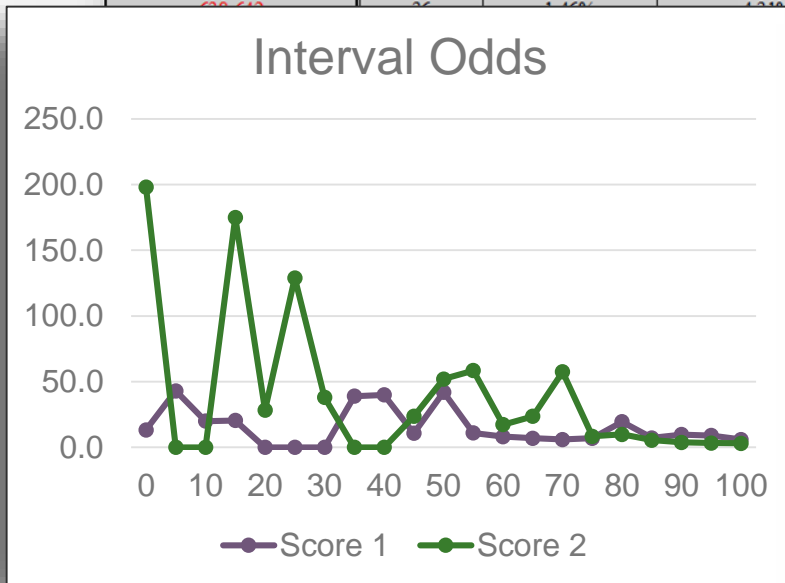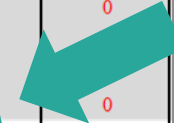
How do we solve for low volume segments and portfolios?
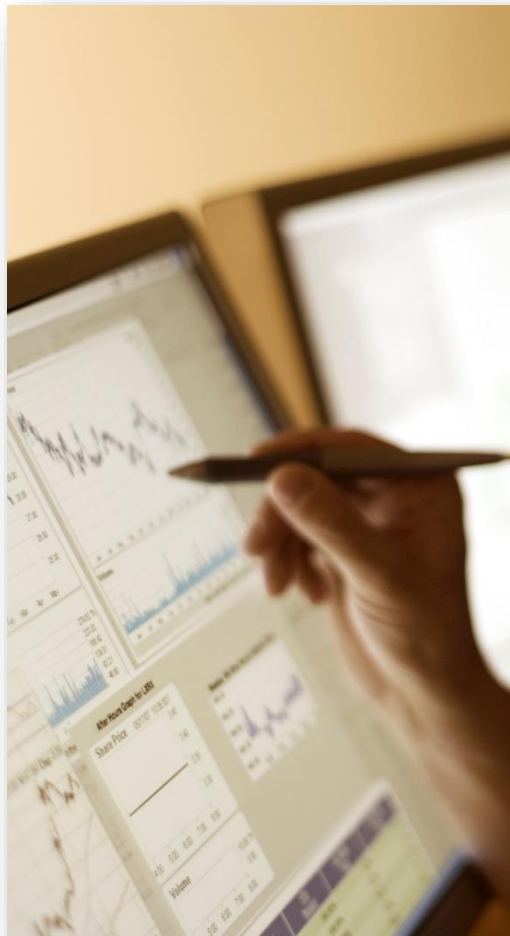
- Generic performance charts
  - ▶ Crosswalk analysis
- Regional analysis
- Performance review
- Reject inferencing

Generic performance charts

Generic probability of default on U.S. sample by score band

Regional analysis

1,000 Bads

Performance review*

24 Month Performance Period

Observation date

Performance date

Archive Data

Performance Flag

Lender provides a historical file of new and/or existing accounts, which are then matched to Experian's credit file; scores are calculated.

Performance flag provided by lender. Typically 90+ DPD or worse.

Bad rate

■ Current score

- Performance evaluation
- Rank order

*Not a statistically valid population

Reject Inferencing

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^{SM}
Example: 90+DPD Bankcard

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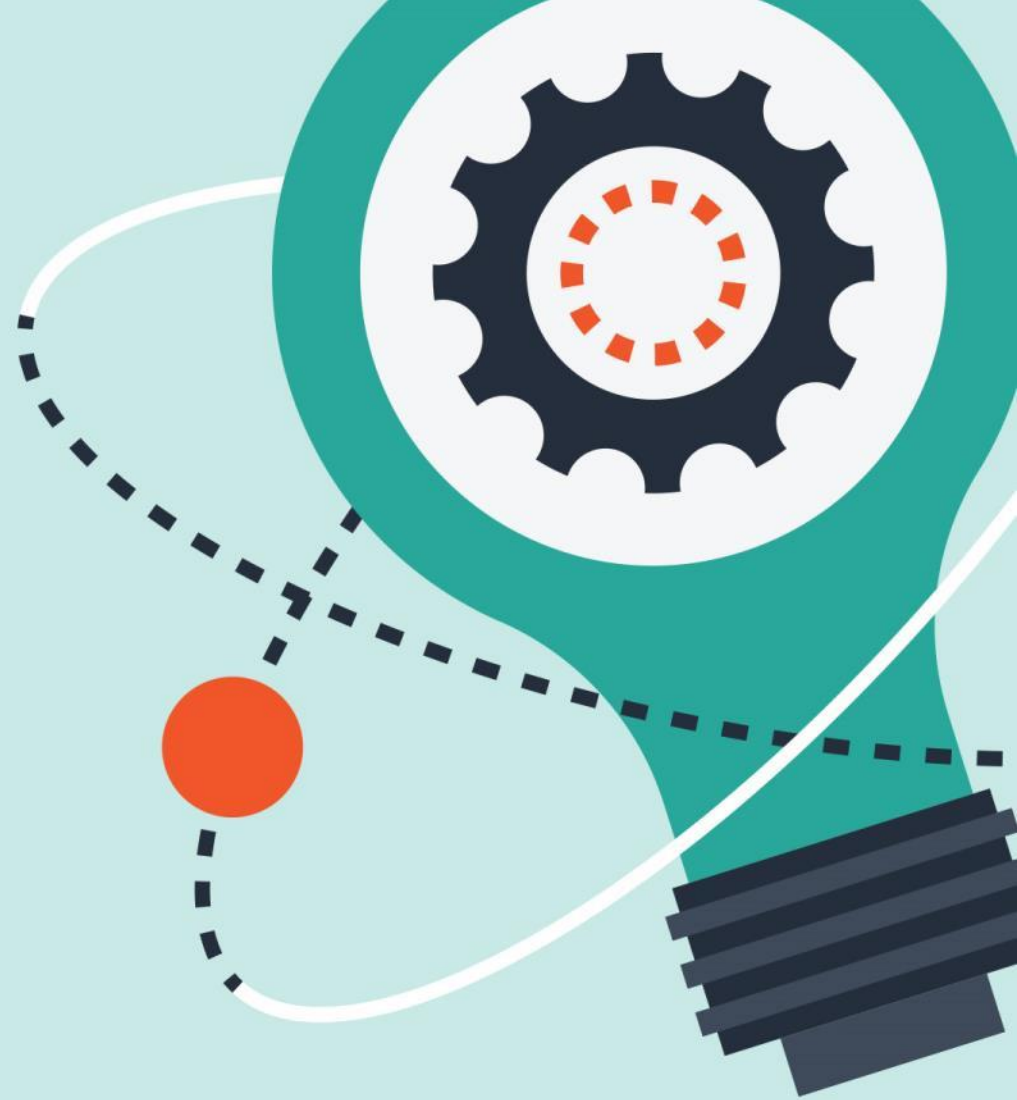Example: 90+DPD on Bankcard with credit limit less than $1000

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	350	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

Challenge

Opportunity analysis review

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 to an alternative score
Exclusions	1.50%	
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 could be approved
700-749	9.50%	
750-799	8.50%	
800-849	7.75%	

Challenge

Summary
Low volume validation

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
OPITONS!

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