

Expanding the credit eligible population in the USA: A case study.

Dr. Andrew Jennings, Chief Analytics Officer, FICO

FICO Corporate Snapshot

Profile	<p>The leader in analytic solutions for customer engagement</p> <p>Founded: 1956</p> <p>NYSE: FICO</p> <p>Revenues: \$789 million (fiscal 2014)</p>
Products and Services	<p>Scores and related analytic models</p> <p>Analytic applications for customer acquisition, service and security</p> <p>Tools for decision management</p>
Clients and Markets	<p>10,000+ clients in 90+ countries</p> <p>Industry focus: Banking, insurance, retail, health care</p>
Recent Rankings	<p>#1 in services operations analytics (IDC)*</p> <p>#6 in worldwide analytics analytics software (IDC)*</p> <p>#7 in Business Intelligence, CPM and Analytic Applications (Gartner)**</p> <p>#26 in the FinTech 100 (<i>American Banker</i>)</p>
Offices	<p>20+ offices worldwide, HQ in San Jose, California</p> <p>2,200 employees</p> <p>Regional Hubs: San Rafael and San Diego (CA), New York, London, Birmingham (UK), Johannesburg, Milan, Moscow, Munich, Madrid, Istanbul, Sao Paulo, Bangalore, Beijing, Singapore</p>

*IDC, *Worldwide Business Analytics Software 2013-2017 Forecast and Vendor Shares*, June 2013.

**Gartner, *Market Share Analysis: Business intelligence, Analytics and Performance Management, 2012*, Dan Sommer & Bhavish Sood, May 7, 2013.

Access to Credit for “Invisibles” is in the news

“A limited credit history can create real barriers for consumers looking to access the credit that is often so essential to meaningful opportunity—to get an education, start a business, or buy a house. Further, some of the most economically vulnerable consumers are more likely to be credit invisible.”

Richard Cordray, Director, Consumer Financial Protection Bureau

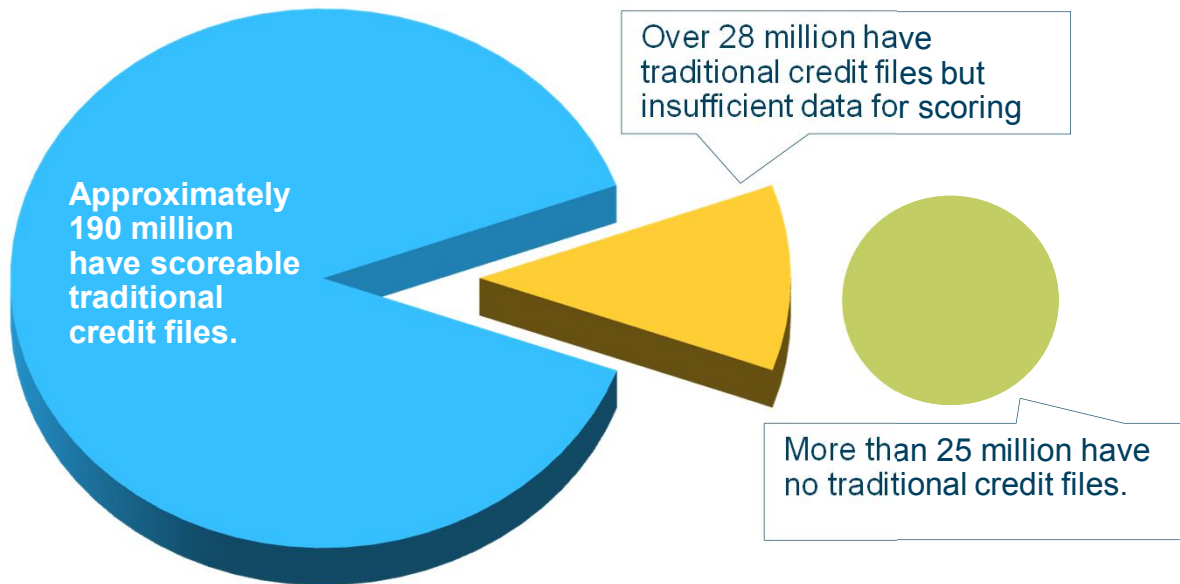




Agenda

- The numbers
- The data
- The approach
- The results

US Credit Population by the numbers



The FICO® score has three key minimum scoring criteria:

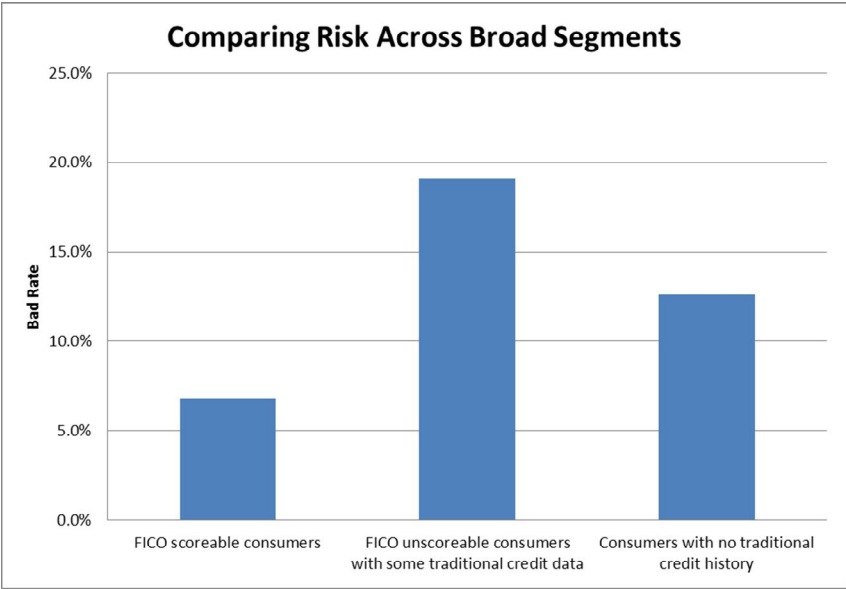
- The consumer cannot be deceased.
- The credit file needs one trade line reported by a creditor within the last six months.
- The credit file needs one trade line that is at least six months old

- 54 million will go on to open a credit account in the next 6 months
- Of these, 2.8 million are unscorable or have no traditional credit file at time of application.

Sizing the Unscorable Population

Segment	Population Size
“New-to-Credit” Files- No tradeline opened at least 6 months	3 MM
“Derogatory” Files- Files with delinquent tradelines, collections or adverse public records	18 MM
“Stale” Files – No tradeline updated in last 6 months	7 MM
“No Hits”- No credit files	25 MM
Total Non-Scoreable Files	53 MM

Different Risk Profiles Among Unscoreables



Observing payment behavior across all credit obligations over 24 months we see that unscoreable consumers as a whole are more risky than those with scoreable credit information.

Scoreable segment	Bad Rate	Unscoreable segment	Bad Rate
Thick and mature histories with no derogatory information	2.1%	Inactive credit history without derogatory information	6.4%
Files with derogatory information	17.3%	Public record or collection account only	32.3%



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- **Regulatory compliance** - The data source must comply with all regulations governing consumer credit evaluation.
- **Depth of information** – Data sources that are deeper and contain greater detail are often of greater value.
- **Scope and consistency of coverage** - A stable database covering a broad percentage of consumers can be favorable.
- **Accuracy** - How reliable is the data? How is it reported? Is it self-reported? Are there verification processes in place?
- **Predictiveness** - The data should predict future consumer repayment behavior.
- **Orthogonality** - Useful data sources should be supplemental or complementary to what's captured by other data sources.

Non Credit Bureau Data: National Consumer Telco and Utility Exchange Database and LexisNexis

National Consumer Telco and Utility Exchange (NCTUE)

- 60+ data contributors (Wireless, Landline, Cable, Satellite, Gas and Electric providers)
- 186 million unique consumers with 25 million without traditional credit
- Historical data beginning May 2009, including both closed and open accounts

LexisNexis (LN)

- Provider of public record, property and identity data.
- Up to 40 million consumers with no CB record
- Non CB data on evictions, property values, profession qualifications and the like.

LexisNexis Data Highly Correlated to Default Risk



Address Changes



Stable Addresses:
5X Less Risky



Evictions



Presence of Eviction:
3X more risky

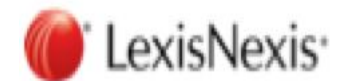


Value of Residence



High Value:
7X Less Risky

Source: LexisNexis analysis of credit bureau extract





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Which Consumers Are Included in FICO® Score Development?

HEADER RECORD (IDENTIFYING INFORMATION)						
E. Wobler Credit 305 Main St. Anytown, 9999		T2 Lend Line Someplace, 6000 Date of Birth 1985-05-25 ID 1010000000000		Start's Petrol & Oil Abroad		
PUBLIC RECORDS (LEGAL ITEMS)						
1989-02-14 Judgment 1000						
ACCOUNT INFORMATION (PAYMENT PROFILE)						
Supplier	Date Reported	Date Opened	Opening Balance	Current Balance	Account Type	Payment Profile
NoviWear	200206	19970110	700	54	I	112210000010 000002221100
SuperCall	200207	19990212	220	120	R	P21000000112 211000000000
Best Bank	200207	19800201	7,500	3,520	R	00000321000 00000000100
Village Bank	200207	20000214	12,000	7,358	I	00000102100 000100001000
ENQUIRIES (SEARCHES)						
Date	Subscriber	Type				
2001-04-21	GoodBuy	EQ				
2002-05-10	RockFin	EQ				

BUREAU SNAPSHOT A

HEADER RECORD (IDENTIFYING INFORMATION)						
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Village Bank	200207	20000214	12,000	7,358	I	00000102100 000100001000
ENQUIRIES (SEARCHES)						
Date	Subscriber	Type				
2001-04-21	GoodBuy	EQ				
2002-05-10	RockFin	EQ				

BUREAU SNAPSHOT B

Scoring date

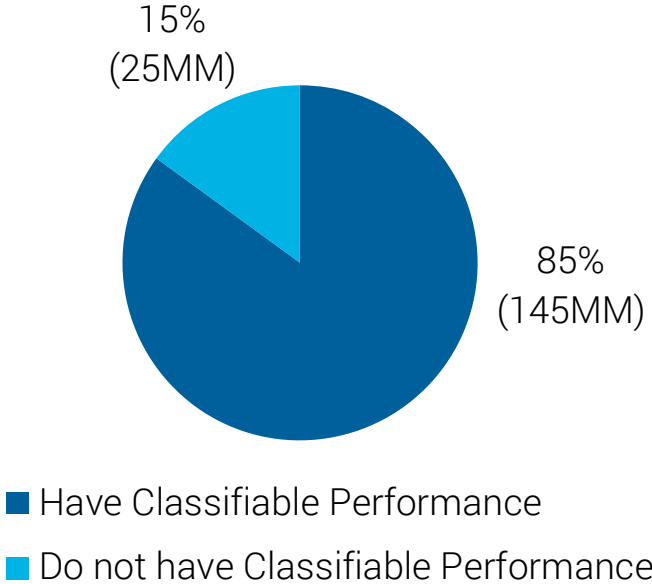
2 years

Performance date

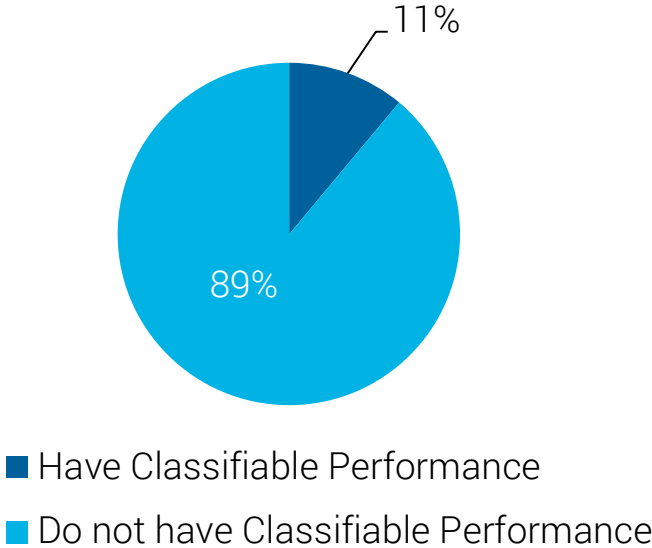
Only consumers who had measurable credit repayment history between Snapshots A and B – i.e., “classifiable performance” - are included in FICO® Score model development

The Challenge of Truncation/Bias in Unscoreable Files

Current FICO Scoreable Universe



FICO Unscoreable Universe

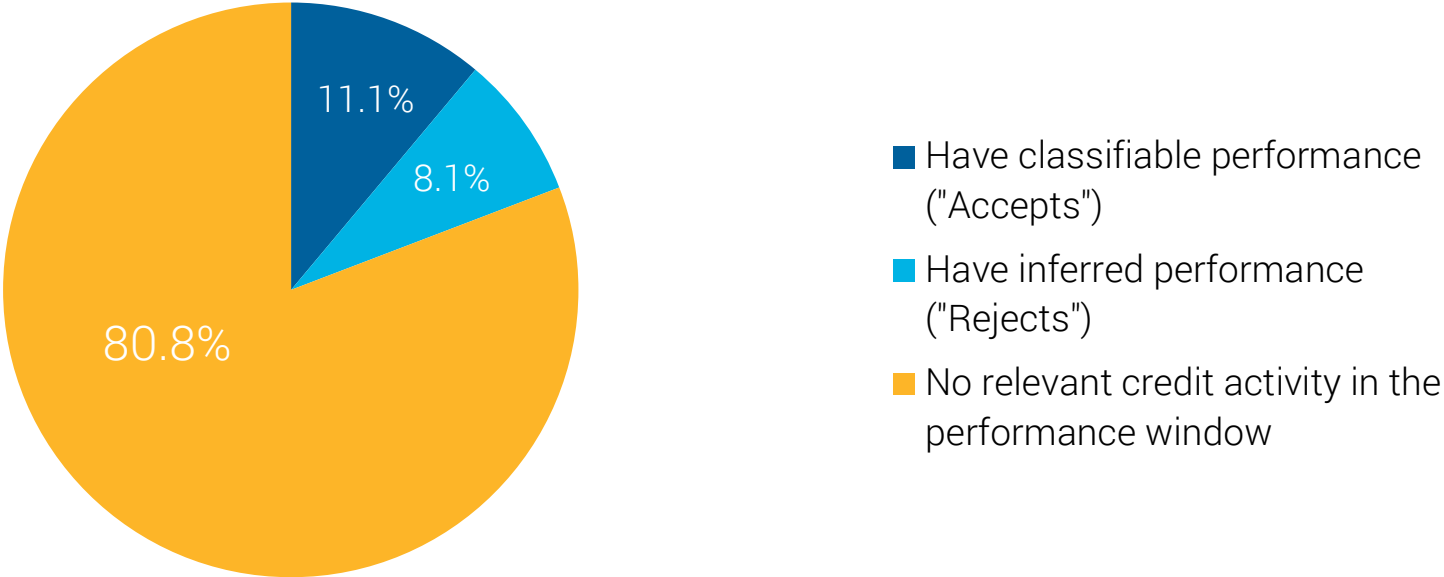


► Can risk patterns observed on the 11% of the sample with “classifiable performance” assumed to hold for the other 89% of the segment?

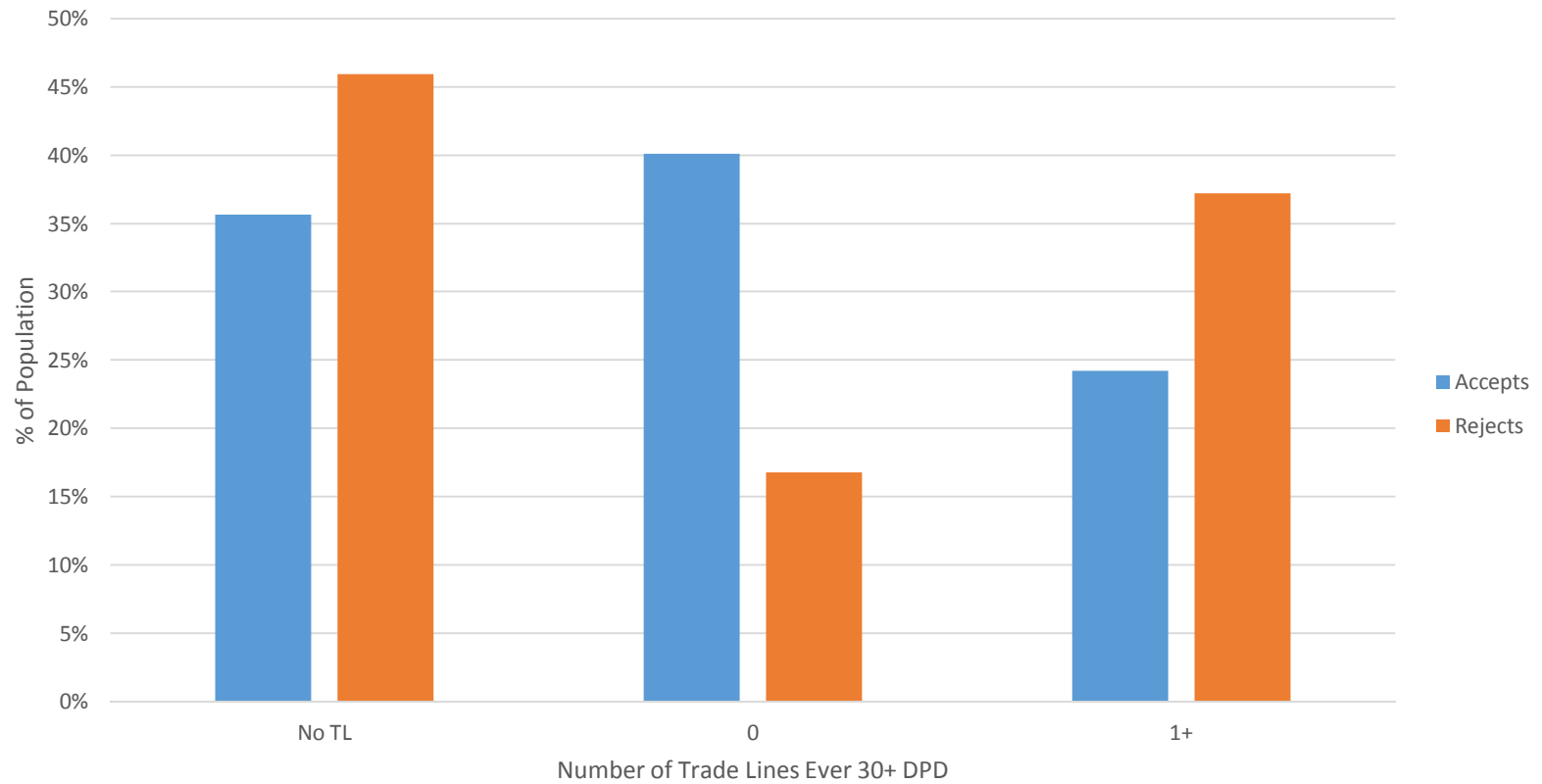
Mitigating the Challenge of Truncation/Bias Reject Inference

- Rejects defined as those with 1+ credit inquiries in “new accounts” window, but no associated new account opening
 - Accepts: those with 1+ account opened in “new accounts” window
 - “Acceptance” rates ranged from 23%-62% across the unscorable segments
- Applied reject inference to the development sample to capture more complete representation of a “through-the-door” population
 - Also increased (in some segments, substantially) the percentage of the population included in model development

FICO Unscoreable Universe

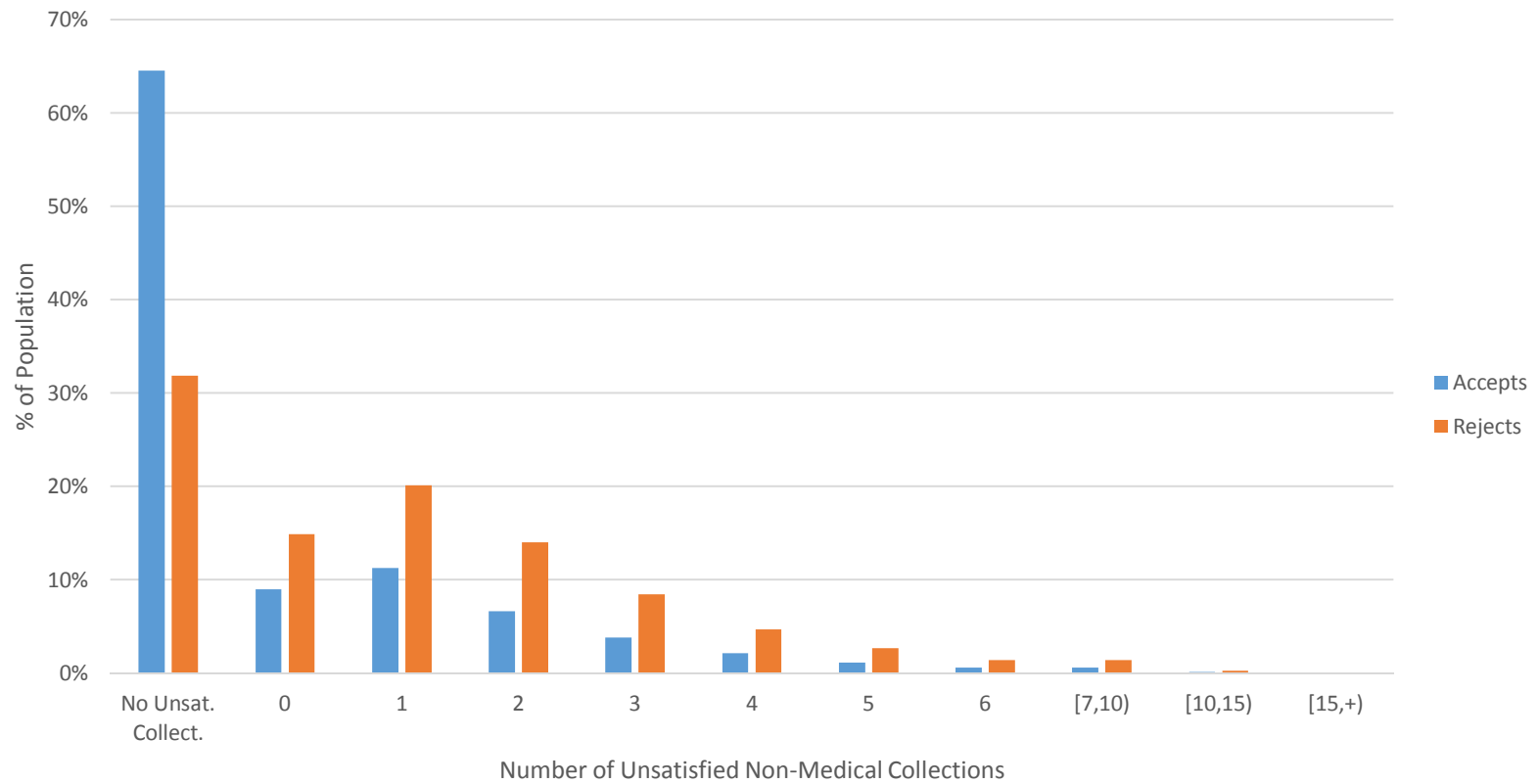


Accept/Reject Distribution Differences *Number of Trade Lines Ever 30+ DPD*



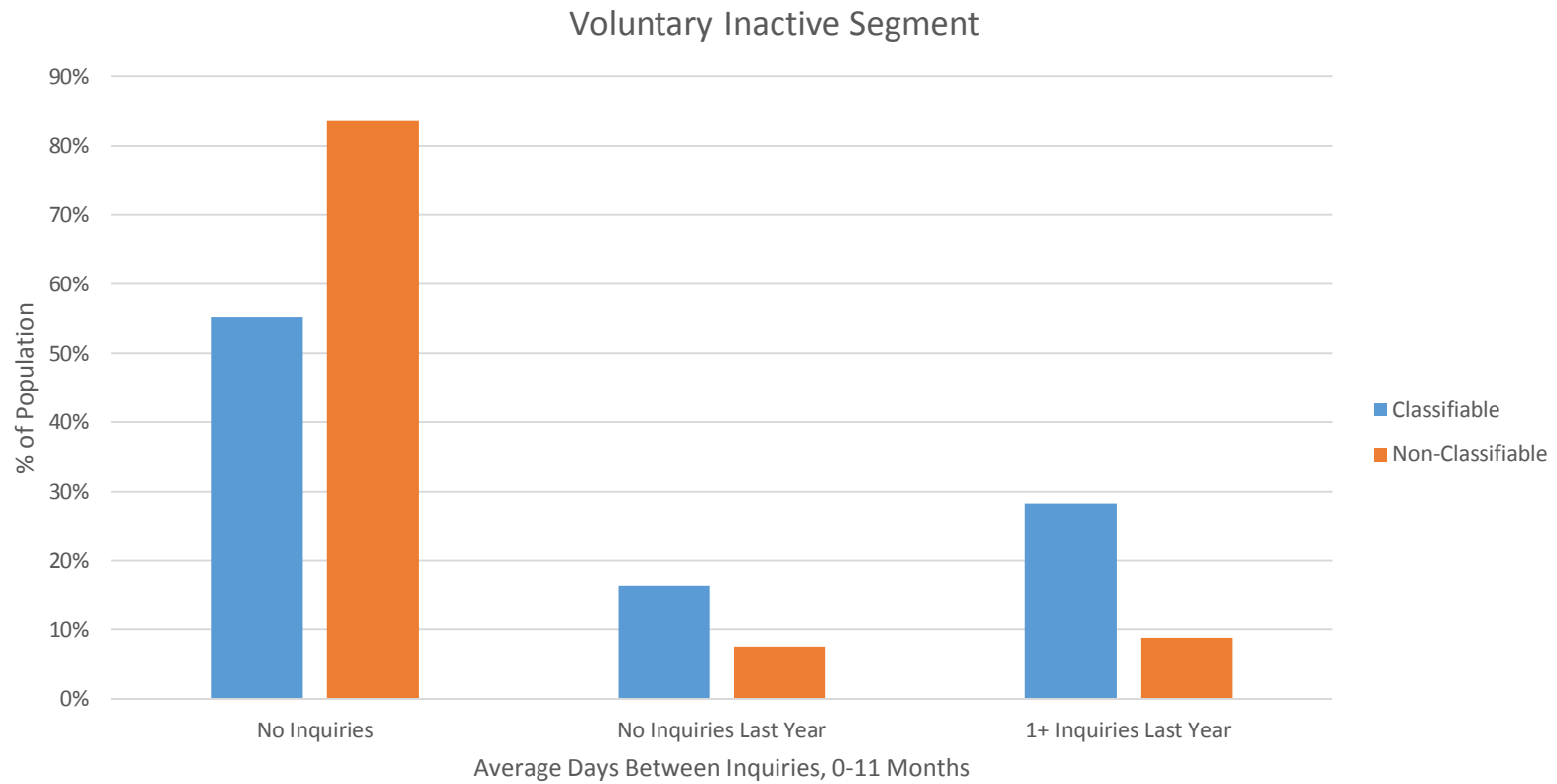
Accept/Reject Distribution Differences

Number of Unsatisfied Non-Med Collections



Classifiable vs Non-Classifiable Performance Distribution

All Industries, All Accounts



Population Performance Summary Statistics*

*Aggregated for display.

Population	Number of consumers	%KGB	%AGB	AGB Odds	Inferred Odds
New to Credit	3.0 (MM)	31.7	56.6	4.4	3.2
Derog	18.0 (MM)	6.0	19.1	2.1	1.9
Stale	7.0 (MM)	8.0	11.3	12.9	8.7
No Hits	25.0 (MM)	11.2	14.4	6.1	4.8

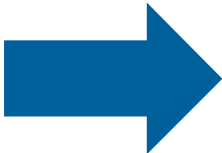
- ▶ Even with these groups there can be significant variations.
 - ▶ E.g. %KGB for Public Record Only within Derog = 3.9% and Stale Derog = 7.4%

Minimum Scoring Analysis Evaluation Criteria

- Classifiable performance rates
 - % of non-scorables with classifiable Known and All Good/Bad performance
- Raw # of Good and Bad consumers
- Performance metrics
 - Divergence, ROC area and KS
- Alignment plots
 - Visual inspection of flattening of odds-to-score relationship
- Propensity Score-based assessment of common support
 - Do the consumers included in model development profile similarly to the rest of the segment not included in model development?

FICO® Score Minimum Scoring Criteria

- The credit file needs one trade line reported by a creditor within the last six months.
- The credit file needs one trade line that is at least six months old



New minimum scoring criteria with the inclusion of alternative credit data

New to credit files

- One trade line opened more than one month

or

- No tradelines and one inquiry within the last 6 months

Derogatory files

- One trade line/collection/public record reported in last 24 months

Stale files

- One trade line reported in last 24 months

No credit file

- Additional LexisNexis or CSD reported information



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Some Relevant Numbers from the Research Dataset

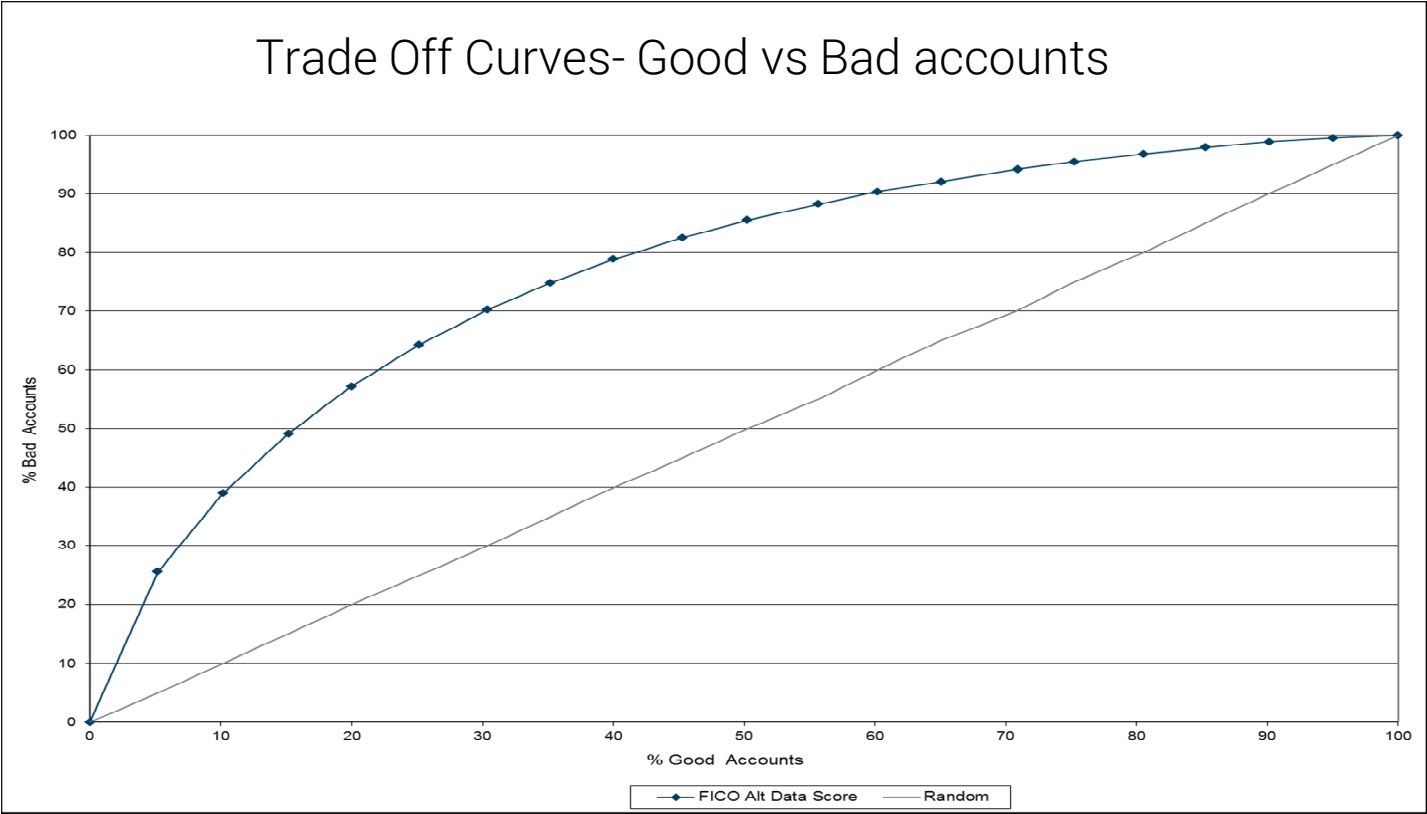
Total number of unscorable and no-hit files.....53 million

Total number of unscorable and no hit files with
LexisNexis match.....38 million

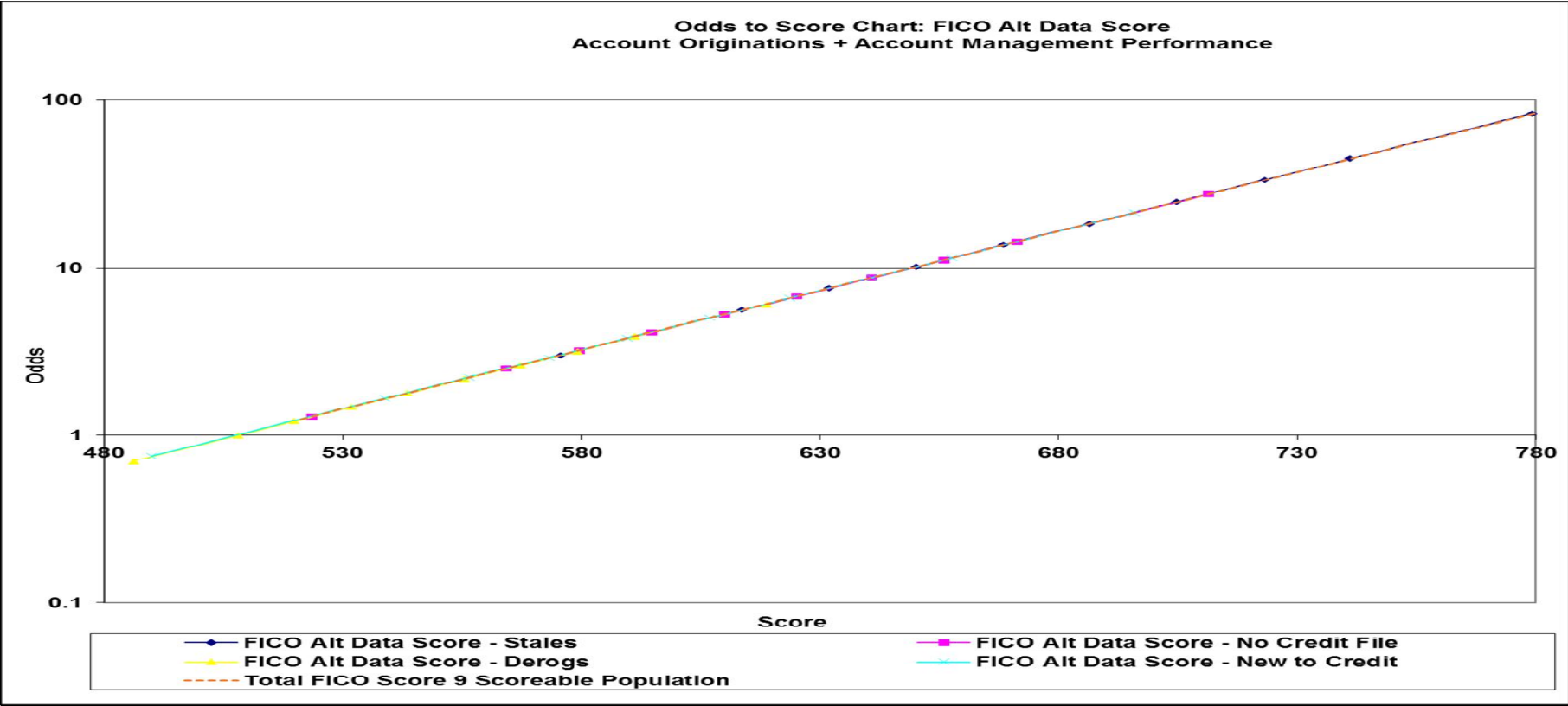
Total number of unscorable and no
hit files meeting minimum scoring
criteria ...15 million

Solid Rank Ordering of Good and Bad Accounts

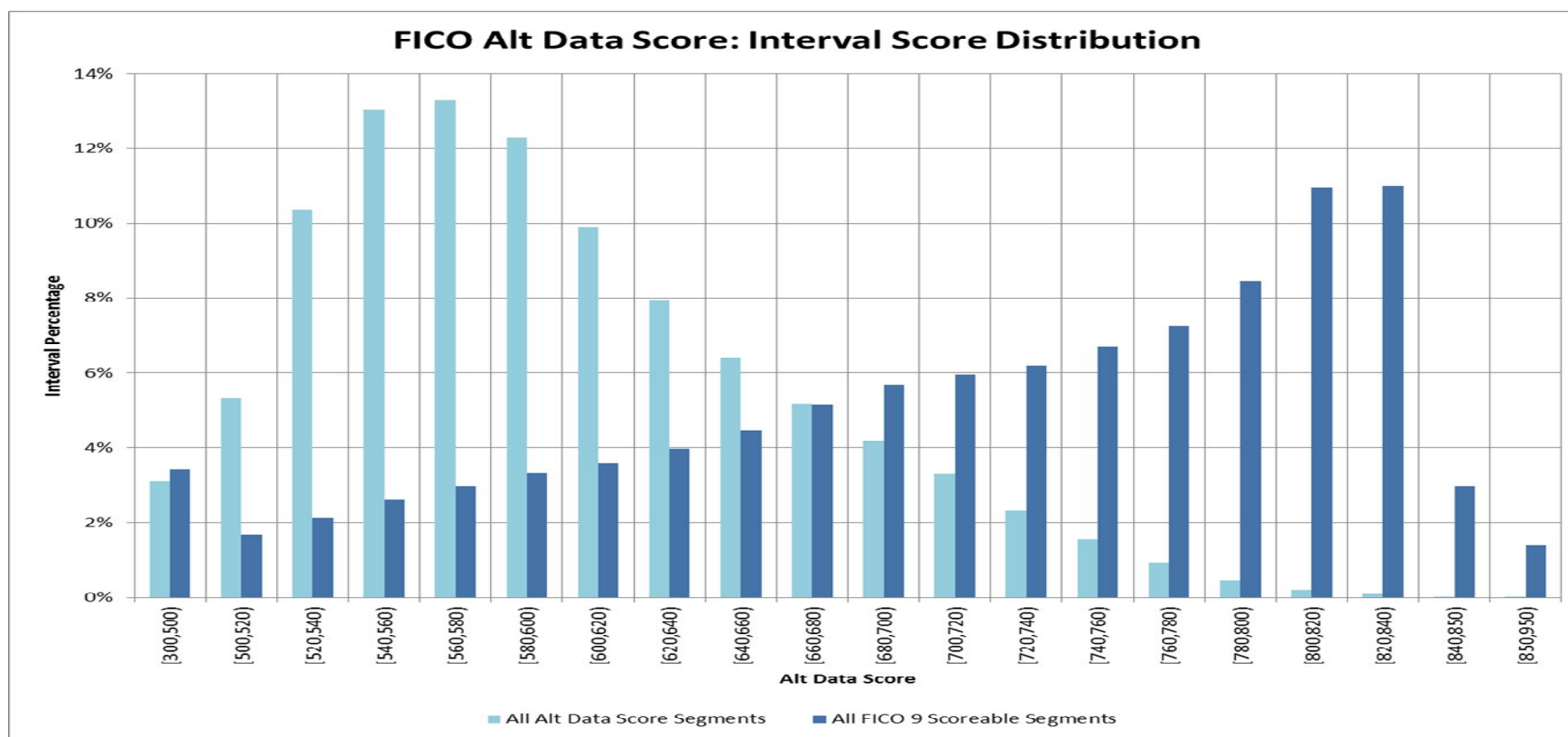
Within Total Alt Data Scoreable population



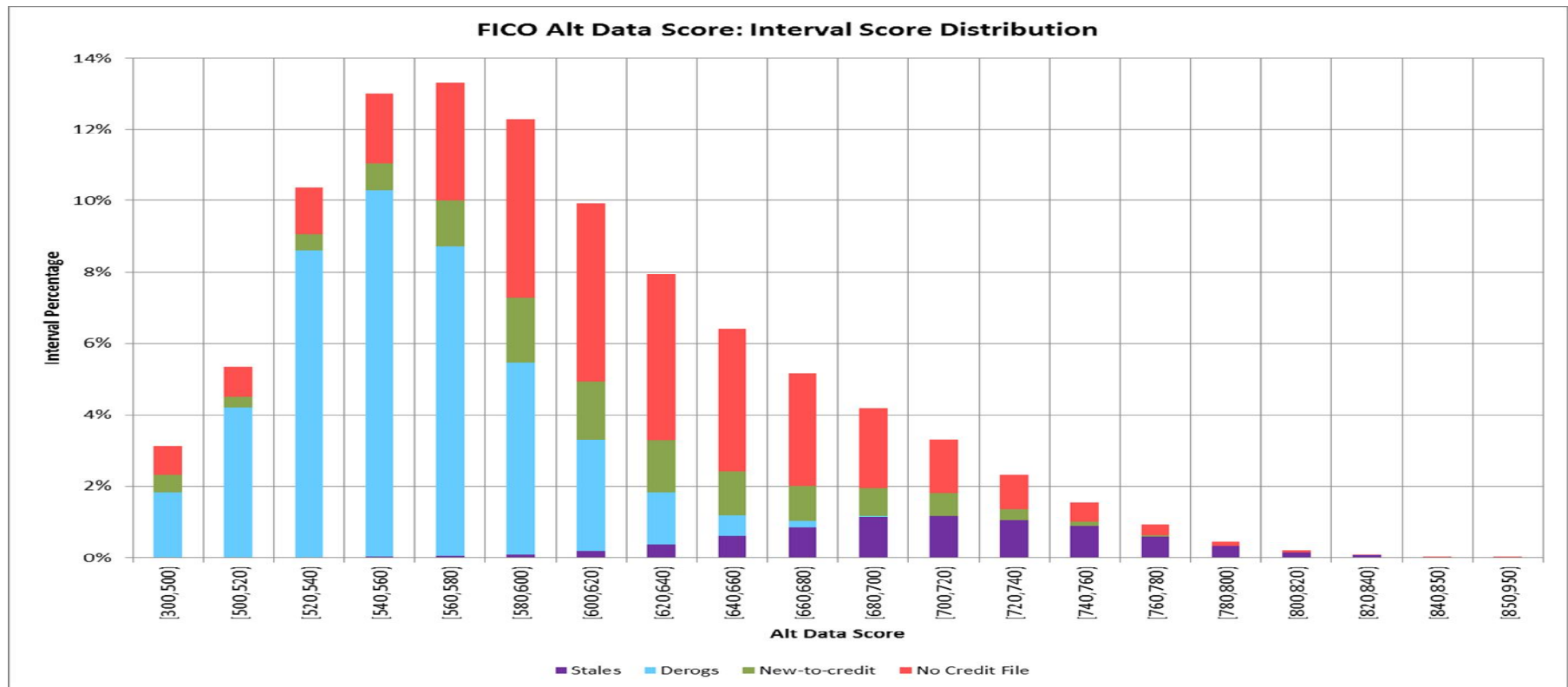
Consistent Odds-to-Score Alignment with FICO 9



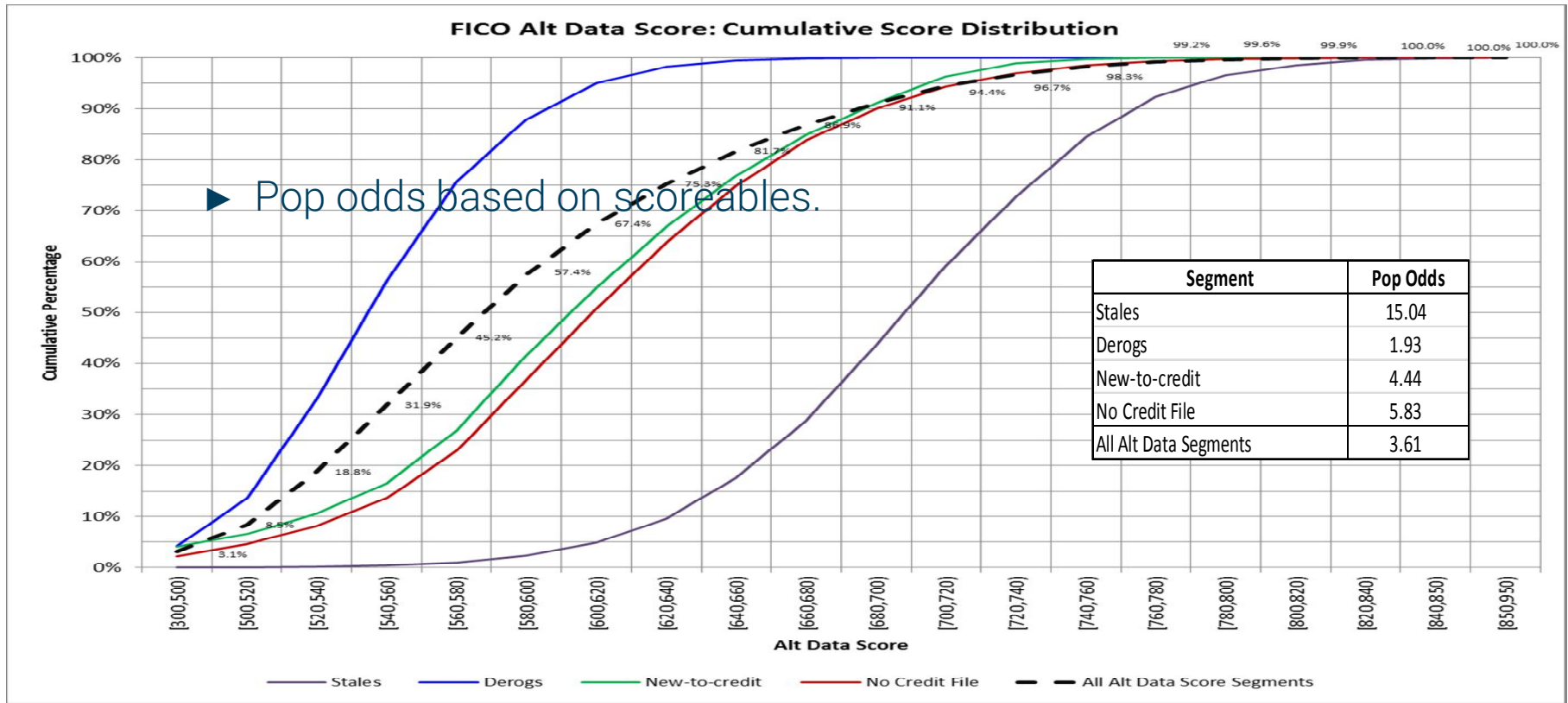
Alternative Data Score Distribution Skews Lower Although more than a third score above 620



The Majority of Scores above 620 are in Stale and No Credit Segments

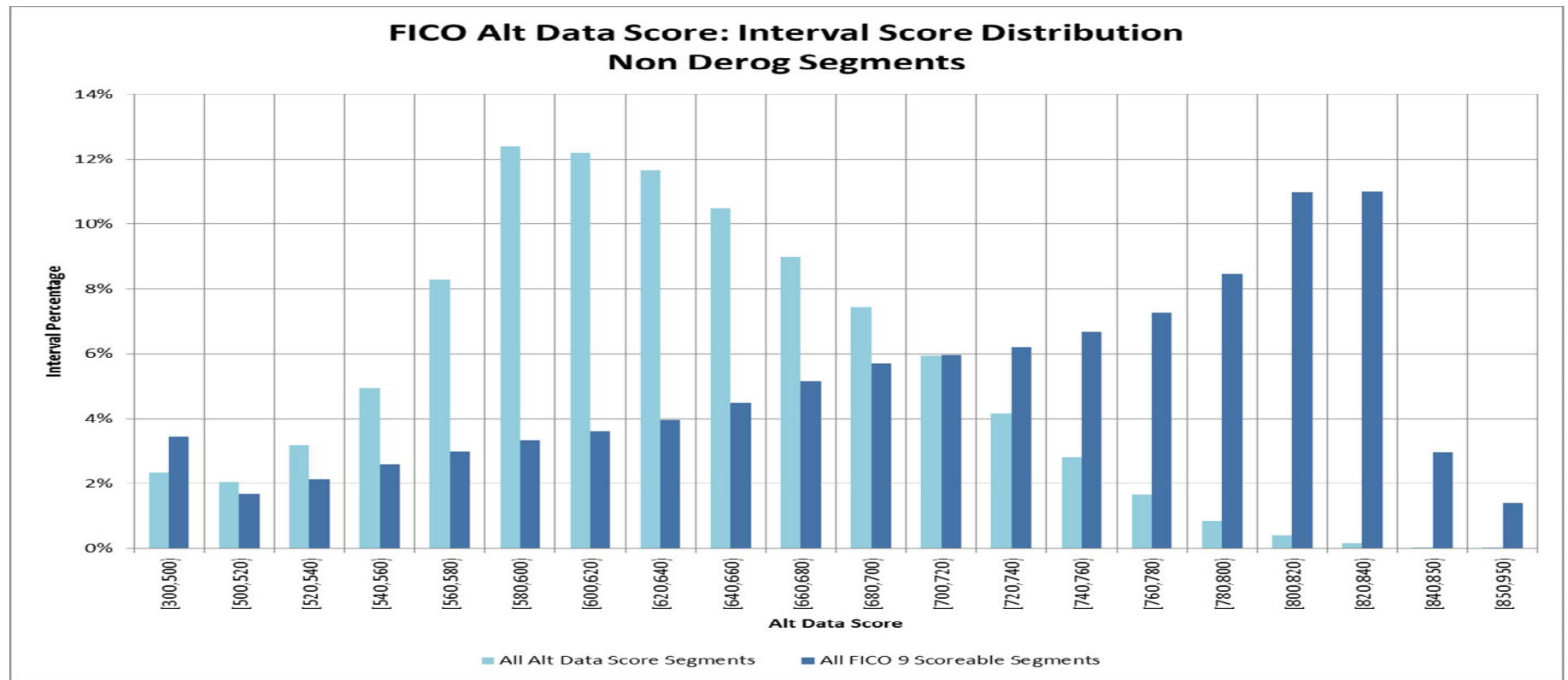


Score Distribution Varies Greatly by Segment



Alternative Data Score Distribution Skews Lower

Skew less pronounced with derog Alt Data Score segments dropped **FICO** Decisions



Extending the Scoreable Population

	Unscoreable applicant population now scoreable	Segment bad rate
New to credit files	76%	18.4%
Derogatory files	47%	34.2%
Stale files	43%	6.2%
No credit file	54%	14.6%

Thank You