Can New and Alternative Credit-Scoring Tools Mean Greater Access to Credit?

- Joanne M. Gaskin, FICO
- Alanna McCargo, Urban Institute
- Michele Raneri, Experian
- Mike Trapanese, VantageScore

March 21, 2017
Credit remains tight for all borrowers

Housing Credit Availability Index, 1998- Q3 2016

Sources: eMBS, CoreLogic, HMDA, IMF, and the Urban Institute.
Observed Denial Rates Miss the Point

Observed versus Real Denial Rates, 1998-2015

Sources: HMDA, CoreLogic, eMBS, and the Urban Institute.
Notes: Based on owner-occupied purchase mortgage applications. ODR = observed denial rate. RDR = real denial rate.
Applicants without stellar credit profiles are dropping out of the market

Share of Lower-Credit-Profile Applicants

Sources: HMDA, CoreLogic, eMBS, and the Urban Institute.
Notes: Based on owner-occupied purchase mortgage applications. Black and white refer to non-Hispanic populations.
Can new and alternative credit scoring tools mean greater access to credit?

March 21st, 2017

Mike Trapanese
Senior Vice President
VantageScore Solutions
Credit scores are the first gateway to mortgage access

<table>
<thead>
<tr>
<th>Scoreability</th>
<th>US Population</th>
<th>Program Eligibility</th>
<th>FNM Price Adjustment</th>
<th>Overall Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Hit</td>
<td>Alternative Data Models only</td>
<td>27 million (11%)</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Unscoreable</td>
<td>Alternative Data Models only</td>
<td>5 million (2%)</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Traditional</td>
<td>VantageScore, FICO, All generic models</td>
<td>185 million (75%)</td>
<td>580+ FHA 620+ GSE Automated</td>
<td>Mainstream</td>
</tr>
<tr>
<td>Expanded</td>
<td>VantageScore or Alternative Data Models</td>
<td>30 million (12%)</td>
<td>Manual Underwriting</td>
<td>3.25%</td>
</tr>
</tbody>
</table>

Giving lenders the option to use new scoring models could bring many **Expanded** consumers one step closer to the mainstream mortgage market.
Expanded population includes broad mix of ages

- Average age of 46 compared to 47 for Traditional Scoreable population*

Distribution^ of CFPB's "Unscored" Population


Expanded population roughly in line with national averages for income, employment

- Average household income of $55,884* is lower than the $88,724 for the Traditional Scoreable population but in line with the national average

CFPB: Income Distribution for “Unscored” Population

- Low: 11%
- Moderate: 18%
- Middle: 30%
- Upper: 41%

* Source: “Exclusionary Credit Score Modeling Limits Access to Credit for Millions of Consumers.” VantageScore, 2016

CFPB, “Data Point: Credit Invisibles,” 2015
Millions have near-prime or better credit scores, while credit files are markedly more sparse

**Distribution of Expanded population by credit score range**

- 300 to 500: 5%
- 501 to 540: 45%
- 541 to 580: 15%
- 581 to 620: 10%
- 621 to 660: 15%
- 660 or higher: 10%

**Distribution by number of tradelines on credit file (top) and age of oldest tradeline (bottom)**

- 0 tradelines: 25%
- 1 to 10: 75%
- Age of oldest tradeline: 30% < 6 months, 60% 6-12, 10% 13-24, 5% 25-48, 1% 49-60, 1% 61-120, 1% 120+

VantageScore 3.0 as of 2014 validation

Credit file analysis conducted 2014
Evidence review: Expanded consumers who manage to access credit

1. During 2-year window, 112k Expanded consumers took first mortgages*
   a) 72% scored 620 or higher at origination (using VantageScore 3.0)
   b) 24% were new to credit, while 47% were “infrequent users” (last tradeline update 6 to 24 months ago)

2. The face value of mortgages accessed by Expanded consumers is close to Traditional averages, in contrast to installment or bankcard loans*
   a) Average mortgage balance for Expanded consumers 620+ is 99% of the Traditional average
   b) Average bankcard and installment loan balances for Expanded consumers 620+ are 14% and 69%, respectively

3. Credit scores for Expanded consumers are stable and well-aligned to Traditional consumers
   a) Observed default rates are well-aligned at each score interval (i.e., a 620 is a 620)
   b) Consumers behave mostly as expected, as reflected in strong model performance (i.e., Gini for Expanded population of 54)

*Note: sample size for Expanded consumers accessing mortgages is very small
Letting lenders choose between newer models could help millions meet the first test of eligibility

Beyond the cutoff, how many Expanded consumers might actually want and afford a mortgage?

<table>
<thead>
<tr>
<th>Begin</th>
<th>30 million Expanded consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclude</td>
<td>VantageScore less than 620</td>
</tr>
<tr>
<td>Subtotal</td>
<td>7.6 million Expanded consumers scoring 620 or higher</td>
</tr>
<tr>
<td>Exclude</td>
<td>Younger than 25 and older than 70</td>
</tr>
<tr>
<td>Exclude</td>
<td>Any indication of current homeownership</td>
</tr>
<tr>
<td>Exclude</td>
<td>Foreclosure on credit file</td>
</tr>
<tr>
<td>Exclude</td>
<td>Any 90-day delinquency in prior two years</td>
</tr>
<tr>
<td>Subtotal</td>
<td>3.4 million potential borrowers</td>
</tr>
</tbody>
</table>

Terms*: How many can afford payments on the median home in their Zip?

<table>
<thead>
<tr>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2%</td>
<td>2.8 million</td>
</tr>
<tr>
<td>5.0%</td>
<td>2.7 million</td>
</tr>
<tr>
<td>6.0%</td>
<td>2.6 million</td>
</tr>
</tbody>
</table>

* Payment calculated assuming DTI less than 43% and 80% LTV

Source: Exclusionary Credit Score Modeling Limits Access to Credit for Millions of Consumers.” VantageScore, 2016
Newer models do not mean weaker standards

1. Scoring models have been, and must routinely be, validated on current and historical data

2. Credit scores are a critical gateway, but hardly (if at all) considered in underwriting mortgages
   - **Within the credit file:** AUS use custom models built to evaluate borrower credit histories
   - **Beyond the credit file:** DU, LP, and Total Scorecard consider assets, income, employment, debt service, cash flow, and other factors beyond the reach of credit scores
Michele Raneri
March 2017
Mortgage originations

Source: Experian IntelliViewSM

Dollars of Loans Originated (Billions)

Percent Change YoY 2013-2016

4Q16: $695 BN 54.07% YoY
Distribution of mortgage loan originations

A = Super-prime 781–850
B = Prime 661–780
C = Near prime 601–660
D = Sub-prime 500–600
F = Deep sub-prime 300–499

Predicts risk of borrower
- Likelihood of future serious delinquencies (90DPD)
- Any type of account

Source: Experian IntelliViewSM
Mortgage late stage delinquency rates

Source: Experian IntelliViewSM

4Q16 Data:
60-89: 0.54%
90-180: 0.65%
Newly Visibles
The U.S. population by credit segment

321 million U.S. population

Over 18 years
77%

Under 18 years
23%

Thick
59%

Thin
25%

No Hit
7%

Invisible
9%

5 or more trades on the credit file

1-4 trades on the credit file

Data other than trades on credit file

No record of credit on file
Generations coming new to file

Nearly 80% of newly visible consumers are from the younger generation, born after 1982.

- **Gen Z**: 40.8% (Average: 617)
- **Gen Y**: 38.1% (Average: 646)
- **Gen X**: 13.6% (Average: 655)
- **Boomer**: 6.4% (Average: 661)
- **Silent**: 1.1% (Average: 659)
Data analysis

**Starting population:** All newly visible consumers October 2015 – December 2015

**Observation period:**
- October 2015
- December 2015

**Performance period:**
- June 2016
Consumers with an inquiry, how many opened a subsequent trade?

Consumers 1+ inquiry

- Did not open trade within 3 mos
  - 25%

- Opened at least one trade within 3 mos
  - 75%

- Credit card inquiry
  - 64.6% opened

- Auto inquiry
  - 59.7% opened

- Retail inquiry
  - 41.8% opened

- Personal loan inquiry
  - 31.1% opened

- Mortgage inquiry
  - 4.4% opened

Total consumers in the population: 2,388,880
What kind of trade is reported first as first to file activity?

<table>
<thead>
<tr>
<th>Trade Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit card</td>
<td>42.0%</td>
</tr>
<tr>
<td>Educational loan</td>
<td>30.6%</td>
</tr>
<tr>
<td>Retail card</td>
<td>9.0%</td>
</tr>
<tr>
<td>Collections department/attorney/agency</td>
<td>6.5%</td>
</tr>
<tr>
<td>Auto loan</td>
<td>6.0%</td>
</tr>
<tr>
<td>Unsecured loan</td>
<td>1.4%</td>
</tr>
<tr>
<td>Secured loan</td>
<td>1.1%</td>
</tr>
<tr>
<td>Other</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

72% of consumers reported with a trade to file as their first activity, have a credit card or a student loan as their first trade.
Average VantageScore® and balance after consumers with their first reported trade

Scores as of June 2016

Collections / attorney / agency: $723
Educational loan: $4,585
Unsecured loan: $2,182
Secured loan: $3,385
Auto loan: $12,979
Retail: $373
Credit card: $914
Can New and Alternative Credit-Scoring Tool Mean Greater Access to Credit?

March 21, 2017

Joanne M Gaskin, AMP
Senior Director, FICO
Total US Adult Population

Scorable 190M

Old File/New File 28 Million

No File 25 Million
The Purpose of the FICO Minimum Scoring Criteria

To ensure that FICO® scores are delivered only when sufficient data exists on a consumer to provide a robust and accurate assessment of that consumer’s credit risk

- Ensures integrity of credit scoring system
- By extension, ensures soundness of lending decisions based on that system

The FICO® Score’s minimum scoring criteria:

1) Consumer cannot be deceased
2) Credit file needs at least one trade line that is at least six months old (“sufficient history of information”)
3) Credit file needs at least one trade line that has been reported within the last six months (“recency of information”)

*Note: Criteria 2) and 3) can be satisfied either by the same trade, or two different trade lines*
The Key Segments of the Non Scorable Population

FICO research focus is on entire unscorable population

- 25m No traditional credit file on record
- 28m Sparse or inactive credit files
- Involuntary inactive credit 39%
- Voluntary inactive credit 25%
- Collections or adverse public records only 26%
- Inquiries only or credit less than 6 months old 10%
Not All Consumers are Seeking Credit

Number of Consumers Seeking Credit over a Six Month Period

- Just over 81 million applicants...
- ... of which FICO can score over 92%...
- ... leaving 8% or about 6.5 million unscorable
Traditionally Non Scorable Population Scored Using Bureau Data Alone

620+ Composition
- Credit Retired 81%
- Derogatory 11.6%
- New to Credit 7.4%
Hierarchy of Alternative Data Sources in Credit Risk Prediction

Level 0: US Credit Bureau

Level 1: Financial Account Data
- Transaction level banking
- Credit trade line
- Demand deposit account

Level 2: Bill Payment Data
- Telco/cable
- Utility
- Retailers
- Rent

Level 3: Non-financial Data
- Public record and property
- Employment/education
- Retail purchase information
- Mobile device
- Psychometric survey
- Social network

- Is there a need to go to the next level?
- What is the value?
Important Aspects When Evaluating a Data Source

6 Point Test

- Regulatory
- Depth & Breadth
- Accuracy
- Additive Value
- Predictiveness
- Scope & Consistency
Benefits of FICO® Score 9 for the Mortgage Industry

Substantial Predictive Lift: A More Predictive Score Qualifies More Consumers

• Expanded Coverage: Considers all data in the credit bureau files, including rental and utility
  – Utility and Telco Data is found on 2.4% and 2.5% of all consumer credit bureau files
  – Rental Data is found on less than 1% of all consumer credit bureau flies

• Improved and differentiated collections treatment
  • Ignores paid third party collections
  • Reduces weight of medical collections

• More refined treatment of thin files

• Ease of Adoption and Implementation
  • FICO Score Adoption Services
  • Odds aligned e.g. “Classic” 620 = 620 FICO® Score 9
  • No new reason codes

• Consumer Friendly
  • 45 Day De-dupe window to address mortgage credit shopping behavior
Addressing the Challenge of the Non Scorable Population

Observations: Two dynamics impacting consumer lending

- Some alternative credit data sources have developed to a scale that support inclusion into a national FICO® Scoring system
- Lenders are seeking opportunities to extend credit to more borrowers, including traditionally underserved and underbanked consumers

Findings: FICO identified an opportunity to extend responsible risk assessment to a broader consumer population for unsecured lending in building FICO® Score XD

Results: Observed scorable rate of over 50% for bankcard applicant populations

- Among those previously non-scorable, more than 1/3 score above 620
- Most applicants scoring over 620 are comprised of consumers with no prior credit file or inquiry only files
- FICO® Score XD creates onramp to mainstream credit products
Alternative Data Sources Showing Most Promise

Telco and Utility Data

- Payment information has similar characteristics to traditional credit file data
- Sourced through Equifax® and the National Consumer Telecom & Utilities Exchange®

- Consumer payment information in the Telco, Pay TV and Utilities space
- More than 90 Data Contributors (wireless, landline, cable, satellite and utility providers)
- 210 Million Unique Consumers from 415+ Million Unique Accounts
- 2015 growth is > 23%
- Historical data back to May 2010
Alternative Data Sources Showing Most Promise

Public Record and Property Data

- Most inclusive of datasets studied with high coverage rates
- Includes sources from tax and government bodies, e.g. address history
- Sourced through LexisNexis Risk Solutions
Summary and Next Phase of R&D

- FICO is committed to generating scores that lenders and consumers can trust to give an accurate, fair assessment of a consumer’s likelihood to repay their credit obligation.
- Alternative credit data, not found in traditional credit files, is effective in reliably scoring millions more consumers; more than half of applicants previously unscorable.
- Previously unscorable consumers that score higher with this new approach go on to maintain good credit standing when a traditional credit history is established.
- FICO® Score XD has great applicability for credit card issuers and we believe there is great potential to expand use of these scores for other credit products.

Coming Up Next…

- Exploration of the impact of these alternative data sources on the scorable universe
  - Scorable thin files
  - Additional industries such as mortgage
- Evaluation of new data sources
NCAP Background

• National Consumer Assistance Plan (NCAP) requires a minimum set of personally-identifiable information (PII) on public records
  – No impact to bankrupt public records
  – Almost all (~96%) civil judgments are expected to fail NCAP public record criteria
  – As much as 50% of tax liens are expected to fail NCAP public record criteria

• NCAP public record criteria to be implemented at all three CRAs by July 2017

• Results were calculated on nationally-representative samples provided by each of the three Credit Bureaus on all FICO® Score versions
  – Observation Snapshot Date: April 2014
  – Performance Snapshot Date: April 2016
NCAP Executive Summary – Experian Data

• No observed material impact to FICO® Score on the total population
  – Identified virtually no perceptible impact to risk prediction & odds-to-score relationship
  – KS impact <= 0.1 across all industries/lifecycles examined
  – Observed no material impact to score distributions
  – 0.20% of credit files swapped above 680, 0.05% swapped below 680

• Observed no impact to scorableView rate
  – ~6% of the total FICO scorableView population would have a judgment or tax lien purged from their file as a result of the NCAP public record criteria
  – Modest impact to FICO® Score on this impacted population
  – Median pre-NCAP FICO® Score 2 for this population is 594

• 92% of impacted population has other derogatory information on their credit file

• Consumers that have no other derogatory information outside of the public record comprises ~.05% of the population.
FICO® Score 2 Odds to Score Relationship – No Perceptible Impact

All Industries – New and Existing Accounts
## Credit Usage Today Compared To a Decade Ago

<table>
<thead>
<tr>
<th>% of Age Group with 1+ Tradeline Type</th>
<th>Age:</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortgage</td>
<td>5.3</td>
<td>2.1</td>
<td>31.4</td>
<td>21.0</td>
<td>40.9</td>
<td>36.4</td>
</tr>
<tr>
<td>Student Loan</td>
<td>37.2</td>
<td>50.8</td>
<td>26.8</td>
<td>40.0</td>
<td>6.1</td>
<td>12.0</td>
</tr>
<tr>
<td>Auto Loan</td>
<td>27.4</td>
<td>28.1</td>
<td>42.8</td>
<td>44.3</td>
<td>33.2</td>
<td>35.8</td>
</tr>
<tr>
<td>Credit Card</td>
<td>73.1</td>
<td>60.3</td>
<td>78.9</td>
<td>74.0</td>
<td>86.0</td>
<td>79.0</td>
</tr>
</tbody>
</table>
Thank you